HBJ A Harcourt Brace Jovanovich Publication

FEBRUARY 1983/$2.00

WEEDS TREES & TURF

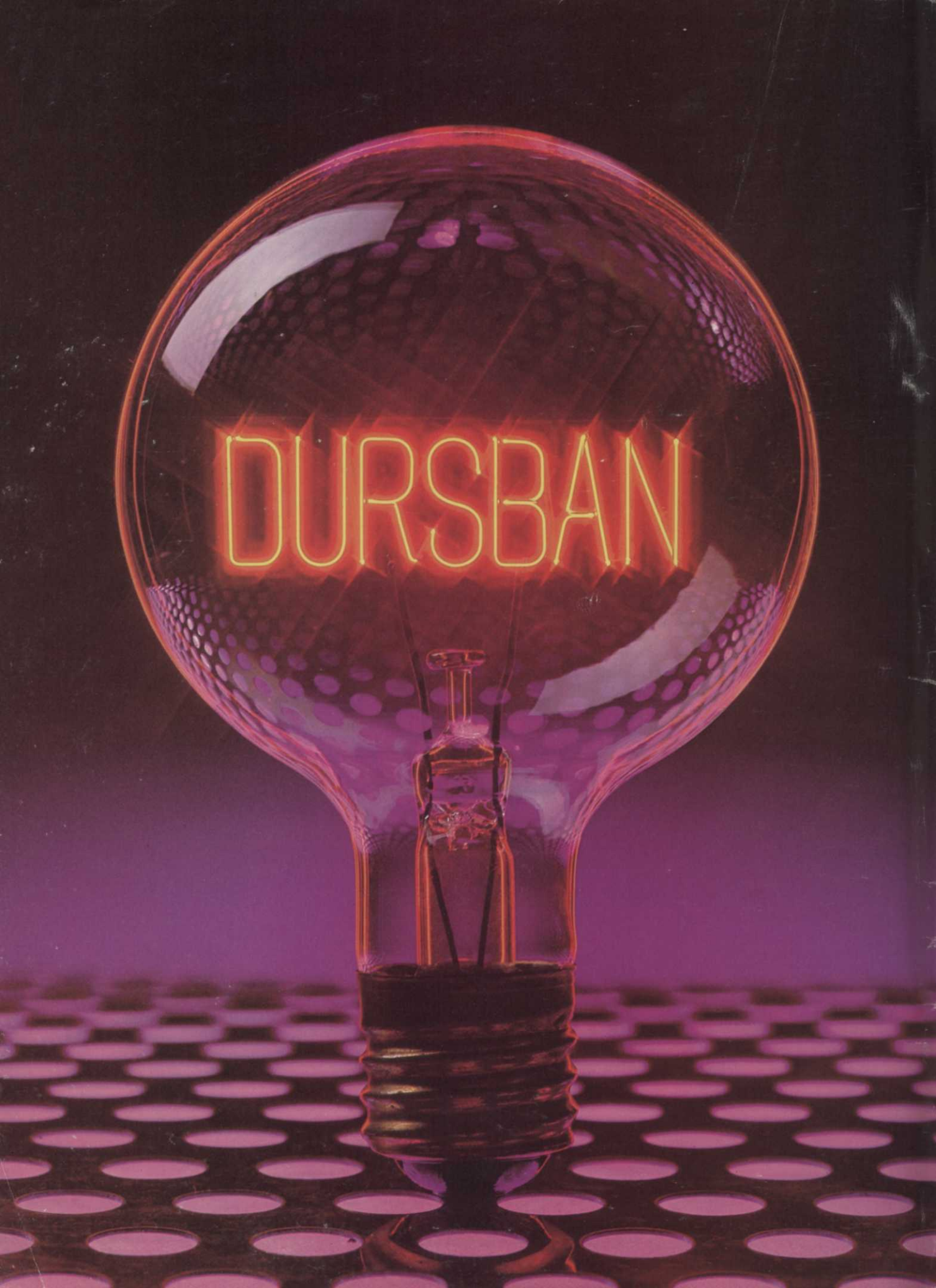
The Journal of Landscape and Golf Course Design, Construction and Care Since 1962

Pebble Beach Wipes Out Kikuyugrass

Master Plans Should Include Golf Car Paths

Golf: The Blue Chip of the Green Industry

Oakland Hills Country Club, Detroit, Michigan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WT&T

Cover: Scenic Oakland Hills Country Club, completed in 1919, is under the care of former GCSAA President Ted Woehrl. See page 28.

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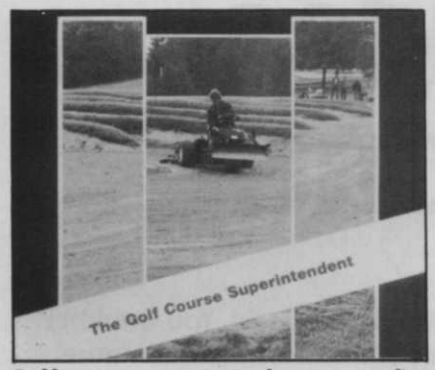
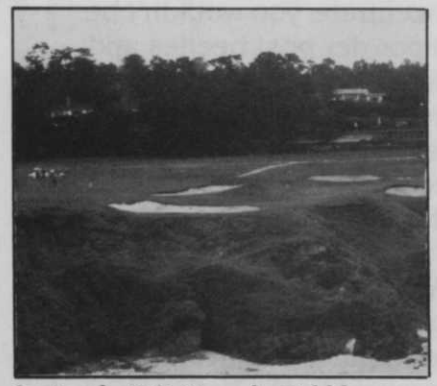


Golf course superintendent research, see page 23



Saving the U.S. Open for Pebble Beach, see page 46

Hydraulics boost mower efficiency, see page 52

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Golf: The Blue Chip Of the Green Industry

The Landscape Management Profile this month reveals statistics on golf course management's strong reliance on real estate and links the value of the superintendent to the increasing value of the property occupied by his golf course. Three profiles of leading U.S. superintendents, Larry Pakkala, Ted Woehrl, and Richard Hartline.

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Pebble Beach Tuned Up for the Open

Overtaken by kikuyu grass, Pebble Beach superintendent Mike Phillips chose to renovate many fairways and roughs after requests from both the USGA and the TPA in preparation for the 1982 U.S. Open.

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Golf Car Paths, Part of a Master Plan

E-Z-Go's James Martello provides reasons for golf car paths and specifications for construction. Martello gives rough figures for planning and encourages superintendents to contact their golf course architect for further details.

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Hydraulic Mowing Can Trim Budgets

The increasing use of hydraulics in mowing equipment provides greater efficiency for users according to Thomas Carter of Jacobsen. Factors include convenience, simplicity, fewer moving parts, and longer life.

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Landscape Log for March Planning

Doug Chapman looks one month ahead for all landscape managers. Use this new department to help schedule work crews a month in advance.

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HBJ A HARCOURT BRACE JOVANOVICH PUBLICATION

Overseeding Oakmont Country Club

Persistence and Penneagle equal Perfection

The entire course was extensively renovated. Playing was possible even though coring, topdressing and seeding were in progress.

"We kept our entire course in play while renovating. Now, the members know the results are worth it."

Paul Latshaw

Paul Latshaw
Supt. Oakmont Country Club

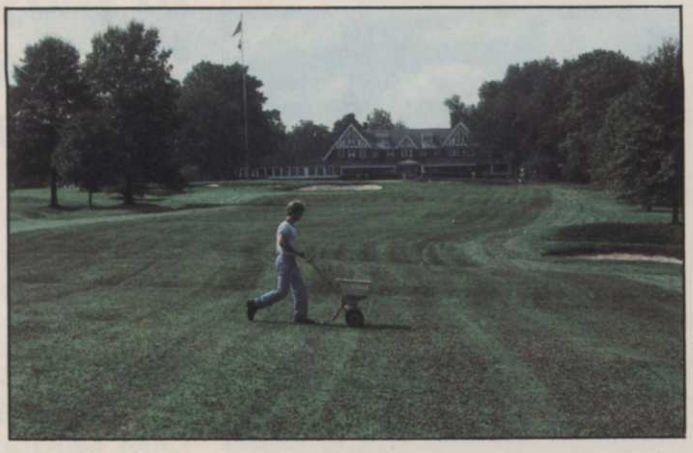
Tees were verticut to soil depth and overseeded with Penneagle.

"We've been overseeding every fall since 1977. We feel that our entire course is now seventy percent Penneagle."

Fairways being aerated in preparation for seeding with Penneagle. Punch aerification provides the best combination of compaction and thatch control, soil contact seedbed, and playable fairways for the membership.

The punched plugs were ground up prior to the overseeding process.

Penneagle was also broadcast over entire fairway in addition to groove-seeding.



"Since we renovate in the fall anyway, it was easy to overseed with Penneagle creeping bentgrass."

View from the clubhouse shows the combination ninth and practice green after extensive renovation. The fairway had just been aerated.

Penneagle mowed at 5/64 inch keeps greens consistently fast. Penneagle is the creeping bentgrass that performs.

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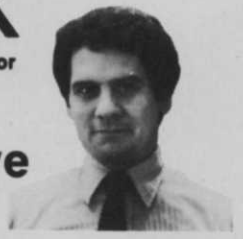
OUTLOOK

By Bruce F. Shank, Executive Editor



GCSAA's proposed move clouded by innuendo

The Executive Committee of the Golf Course Superintendents Association of America has apparently constructed a fairly airtight case for moving to Orlando, Florida. It met in Orlando in November and will present its case to the membership in a position paper at the show in Atlanta.

It's really no surprise. The Executive Committee made clear its intentions at the conference in New Orleans last year. Those members defending the Lawrence location have had time to build their case and will no doubt be heard at the Annual Meeting.

What bothers me is the suggestion Executive Director Jim McLoughlin was the architect of the plan to move to Florida and his motives were personal rather than professional. I find this hard to accept. Furthermore, it clouds the real issue, would the association be more effective in Orlando?

McLoughlin built his career in the Metropolitan New York City area. His family and friends are there and his power base is there. Certainly, he would prefer New York over Orlando. The selection of Orlando must be a second choice for him. His contention that GCSAA should be closer to the action is valid.

If you read the masthead in this publication you know our company recently made a major decision to leave New York City for more reasonable quarters. The savings are considerable as the publishing branch of HBJ settles in the Cleveland area. But, the headquarters of the entire corporation will be located in Orlando by 1984.

Orlando is becoming a major corporate hub and computer center. Many large corporations are building offices there. It is also a 12-month turf market and located in the state with the largest number of new courses in the country. Other golf associations selected the state for their headquarters, such as the National Golf Foundation and the Professional Golfers Association. These are facts which override any suggestive remarks about the executive director's personal desires.

New pesticide labels pick up

Word from Edwin Johnson, EPA Director of Pesticide Programs, and leading researchers indicates a number of new fungicides, growth regulators, and pesticides are nearing registration. After years of stagnation, the products which survived EPA's review process are now being helped by EPA's new attitude toward industry. The new products provide greater safety through increased effectiveness. After all they've been through, you ought to give them a try when they are released.

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OFFICES

ATLANTA
3091 Maple Drive
Maple Center One Building
Atlanta, GA 30305
(404) 233-1817

CLEVELAND
7500 Old Oak Boulevard
Cleveland, OH 44130
Editorial: (216) 243-8100

CHICAGO
111 East Wacker Drive
Cihcago, IL 60601
(312) 938-2344

SEATTLE
1333 N.W. Norcross
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GREEN INDUSTRY NEWS

GOLF

Small course cutbacks are greater

While golf continues to be one of the more popular sports in the country, golf course superintendents are doing a lot of belt-tightening to try to neutralize some of the adverse affects the beleaguered national economy is leveling on the industry.

The smaller budget courses seem to be shouldering the burden the hardest, with some of the larger, more financially stable country clubs riding out the bad economy.

A handful of the 12 superintendents across the country contacted by WTT see a brighter future ahead, but half foresee the economy remaining static for the rest of the year.

"Recreation dollars are one of the first things people have to trim," says Garland Parsons, superintendent of Pine Valley Golf Club in Wadsworth, OH. "We're going to try to operate as we have been until things get better."

> "Recreation dollars are one of the first things people have to trim" — Garland Parsons, Wadsworth, OH

All of the superintendents contacted said they are keeping a very watchful eye on all expenditures and most have cut back beautification programs and preventive maintenance to concentrate on curative measures.

Dwight Ladd, superintendent at Mooresville Golf Club in Mooresville, ID, has cut back fairway fertilization on his nine hole course to only once in the fall.

"This is a 'mom and pop' course and we just can't afford it anymore," he said.

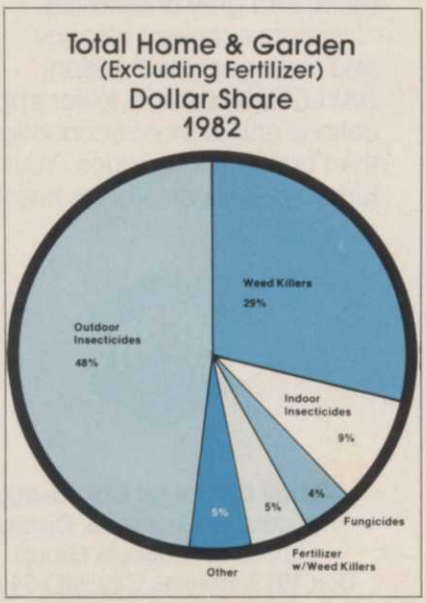
One course in the Kanawha County Parks and Recreation District in West Virginia had its first layoff in the modern history of the course, according to its superintendent, James Taylor, Sr.

Continued on page 12

CHEMICALS

Chemical industry defies weak economy

From 1980 to 1982, the home and garden chemical industry enjoyed strong sales and expanding markets despite the sluggish economy, according to Don Sell, senior marketing research analyst for Ciba-Geigy's Spectrum Home and Garden Products.



The industry showed substantial gains in the sales of insecticides, herbicides and fungicides, particularly in the Northern states, according to a three-year survey of key retailers in major metropolitan markets throughout the United States.

"It appears that the poor economy was no deterrent at all to growth in the industry, which posted a 42 percent increase in dollar sales during the three-year period," said Sell.

Measured against the increase in the Consumer Price Index for the period, the figure represents a real growth of some 25 percent for home and garden chemicals.

Overall, outdoor insecticides and herbicides continue to account for some 75 percent of home and garden chemical sales," Sell said. "But indoor insecticides and fungicides showed the biggest growth during the period, each enjoying a 69 percent increase in dollar sales."

Sell said the biggest surprise was the outstanding sales performance by retailers in Northern markets, with Southern states showing more moderate gains. However, Southern markets held the lead in the sale of outdoor insecticides.

To assess the industry's sales trends, Spectrum's market research team audited a cross-section of garden supply stores and mass merchandiser chains across the nation, recording changes in inventory between April and August in 1980, 1981 and 1982.

Spectrum markets multi-purpose Spectracide insecticides and 33 Plus herbicides for home lawn and garden use.

ACQUISITION

Gilson Brothers acquires Sensation Corporation

The Gilson Brothers Company of Plymouth, WI, has purchased the assets of the Sensation Corporation of Omaha, NE.

The announcement was made by Richard Blohm, president of Paragon Industries and Carl Johnson, president of the Sensation Corporation.

"Sensation will be a division of the Gilson Brothers Company and Carl Johnson, president, and John Kurtze, vice president of sales, and other key people will continue to operate Sensation on a 'business as usual' basis serving Sensation's customers as they have in the past," said Blohm.

Gilson is a leading manufacturer of outdoor power equipment and concrete mixers. It has recently acquired some companies who are geared toward producing products for the commercial market. Blohm said he hoped

Continued on page 92

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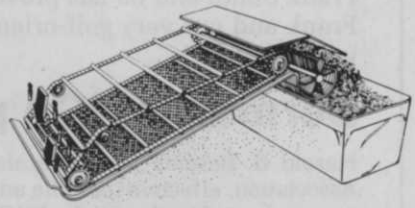

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GOLF UPDATE

NGF's Rossi to retire

Don A. Rossi will retire from the National Golf Foundation effective June 1, after serving 13 years as its executive director.

Rossi, 64, has been on special assignment for the Foundation since Jan. 1 and will continue on a consulting basis after his retirement, according to NGF President Frank M. Smith Jr. At press time, there were no immediate plans to name a successor.

Many of the National Golf Foundation's ties with major golf organizations worldwide as well as in the U.S. have been credited to Rossi. In 1976, in conjunction with the British Golf Foundation, Rossi organized and participated in the first annual international golf development meeting in London. Rossi also played a role in the formation of the Allied Association of Golf "in order to have a better idea of what we (the major golf organizations) were doing so that we didn't duplicate efforts."

Rossi said he was especially proud of the development of the Associate Member program and the growth of the Golf Market Report. The Associate Member program has grown in 14 of its 17 years of existence while the Golf Market report, which reaches all NGF members, has kept pace.

"Will I be sad to leave the Foundation?" asked Rossi. "Unequivocally, yes. The Foundation begins a new era under Frank Smith and he has proven himself a dynamic leader. With Frank and our very golf-oriented Board of Directors, our future will be bright."

Berman is NCA president

Harold B. Berman has been elected president of the National Club Association, effective until the annual meeting in May 1983. The vacancy was created by the death of NCA President Sam M. Berry.

Berman has been a member of the NCA Board of Directors since 1974, and served as its vice president for four years. He is a past president of the Columbian Country Club of Dallas, Carrollton, TX, and serves on the Board of Directors of the Quadrant Club, Dallas, TX. Berman is past president and a director of the Texas Recreation and Sports Association.

A native Texan, Berman is president of the law firm of Berman, Fichtner and Mitchell of Dallas. His firm specializes in estate planning and probate, but also practices real estate, corporate and club law. As a member of the American Bar Association, Berman served as NCA's keynote speaker at the recent ABA meeting requesting that the group rescind its policy redefining private clubs as public accommodations. The rescission was voted on favorably.

Afaganis keynoter at CGSA show

Ernie Afaganis, CBC Television sportscaster, will be the keynote speaker at the 24th Annual Canadian Turfgrass Conference and Show March 13-16 at the Edmonton Inn, Edmonton, Alberta, Canada.

A native of Alberta, Afaganis has been golfing for more than 40 years, starting out as a caddy at the Old Country Club in Lethbridge.

Afaganis is in his fourth season as host of CBC Sports, "Sportsweekend" and has covered the Commonwealth Games in Brisbane. His golf show, "Par 27", seen in Alberta, is in its 19th year.

The 34th Annual Turfgrass Conference and Show will also feature more than a dozen experts from all segments of the turfgrass industry and a three-day trade show with the latest in turf maintenance equipment and supplies on display. For more information, contact the Canadian Golf Superintendents Association, 698 Weston Road, Suite 32, Toronto, Ontario, M6N 3R3, (416) 767-2550.

Larger courses, however, such as Lakeside Golf Club in Hollywood, CA, Woodmere Country Club on Long Island and Mariner Sands in Stuart, FL, are holding their own.

Mike Heacock at Lakeside said his budget will increase for 1983.

"We have tightened up on our procedures, though," he said. "We still buy anything we can justify. We've also gone to reclaimed water to irrigate, but more for conservation purposes than economic."

Richard McGuinnes at Woodmere says his course has kept right in step with inflation.

> "... We work on a dormant feed program and it's proven very cost-effective" —Mike Heacock, Lakeside Golf Club, Hollywood, CA

"This type course (18-hole, private) is somewhat recession-proof," he said. We also have excellent maintenance procedures. We work on a dormant feed program and it's proven very cost-effective."

Mariner Sands is part of a real estate development and cannot afford to cut back any of its beautification plans because the course is the main selling point of the housing development, according to its superintendent Kevin Downing.

> Superintendents are getting help from chemical suppliers eager to meet their supply needs economically.

Superintendents are getting help from chemical suppliers eager to work with them in meeting their supply needs efficiently and economically.

Jim Ross, superintendent at the Santa Teresa Golf Club in San Jose, CA for the past year, said the dealers he uses have been helpful in giving 90 to 120 days same-as-cash.

Robert Mitchell of Lockhaven Country Club in Alton, IL, said his suppliers are agreeing to "split deliveries."

"That way we can buy in bulk, but not have to store what we buy until we need it," Mitchell said.

Many superintendents who've never used growth retardants and select-

ive killers are now using them to try to cut even more maintenance corners.

Courses are still trying to make improvements within the boundaries of their budgets and many share the same feeling as Richard McGuinnes of Woodmere.

Maureen Hrehocik, Associate Editor

HORTICULTURE

Raulston recipient of NC State Chadwick Award

J.C. Raulston, Ph.D., a professor of horticulture at the North Carolina State University/Raleigh, has received the L.C. Chadwick Educator's Award. The award, presented annually by the American Association of Nurserymen, recognizes outstanding horticulture instructors in the classroom and in the industry.

Raulston has traveled extensively compiling industry nursery techniques to use in his classroom instruction. He has developed a 430-page teaching manual on nursery production and management, which is used as a standard reference source. Raulston is active in the Student Horticulture Club and is a lecturer on horticultural topics to the public and nursery industry.

SEED

Williamson names Doyle national accounts manager

Thomas J. Doyle has been named national accounts manager of the Eastern Region for Garfield Williamson, Inc., a lawn seed and fertilizer supplier in the Northeast. Doyle worked for 12 years with the O.M. Scott Company where he was Salesman of the Year for eight of the 12 years, has chain-store merchandizing and promotion experience and has worked for a major food brokerage firm serving the New York metropolitan area.

EQUIPMENT

Toro reports smaller loss in first quarter

The Toro Company reported a net loss of $2.3 million or 48 cents per share on sales of $32.5 million for its first quarter which ended Oct. 29, 1982.

The loss compares with a net loss of $6.5 million or $1.24 per share on sales of $23.8 million in the first quarter the previous year.

The size of the loss was reduced by a non-recurring net gain of $466,000 after tax resulting from the retirement of industrial revenue bonds in Mason City, IA.

Toro President Kendrick B. Melrose said he was pleased with the results from the first quarter which is historically the company's weakest.

"Our turnaround continues on schedule and I would expect the company to show a quarterly profit in the very near future," Melrose said. "However, we remain concerned about the softness of the consumer economy in all of the markets we sell."

Stephen F. Keating, chairman of Toro's Executive Committee, said the greatest factor in the 37 percent increase in sales was the increase in snowthrower business where sales improved from $2.8 million in fiscal 1982 to $11.4 million this year.

"We have had reasonably good retail movement of snowthrowers this fall," Keating said, "especially in areas that experienced heavy snowfall late last

Continued on page 16

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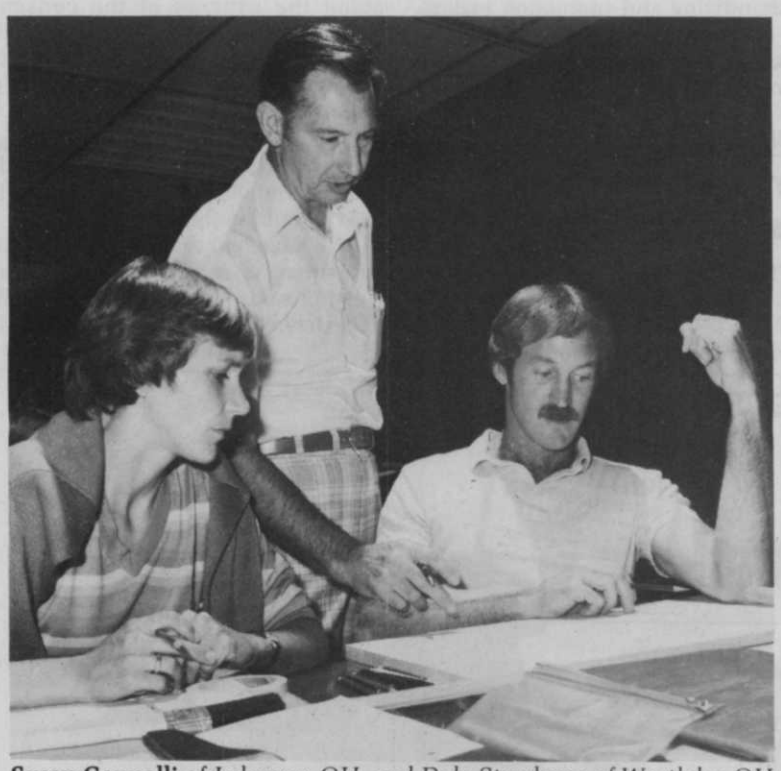
LANDSCAPE UPDATE

Architects averaged $31,700

The average salary of a recent American Society of Landscape Architects survey was $31,718. Pacific region landscape architects have the highest income ($34,507) and midwestern LAs have the lowest ($28,566). Public architects make less than private and academic practitioners according to the survey.

The average woman in the survey had less experience, education and a much lower income, but not out of line with experience scales for men. Nine out of ten respondents in the survey were men.



Susan Gannelli *of Lebanon, OH, and Dale Steadman of Westlake, OH, are instructed by Fred Buscher of the Ohio Agricultural Research and Development Center during the seventh annual landscape design short course held recently in Wooster. More than 1,400 in six states have benefitted from the seminars since 1976.*

Gibbons nears PGMS presidency

Often the critical election for association officers is the president-elect rather than the president. This is true for the Professional Grounds Management Society who just elected Jim Gibbons, horticulturist for the San Diego Zoo, president elect. Fred Rigger of the Padonia Corporation in Cockeysville, MD, is president for 1983.

George Eib, superintendent of Forestry and Landscaping for Kansas City, MO, was elected vice-president. Mort Rolsky of Pro Care in Indianapolis, IN, was elected vice-president. Mort Rolsky of Pro Care in Indianapolis, IN, was elected treasurer.

NEWS *from page 15*

winter. Our distributor inventories are being worked down, and we are sold out of the new gas power shovel and several other snowthrower models at the factory level."

Toro's international business showed an improvement during the quarter and its irrigation business was off slightly.

Keating said the company is optimistic about the second quarter because of expectations for "reasonably strong" lawn mower orders based on heavy initial demand for the company's new line of 2-cycle engine walk mowers.

Toro is the nation's largest independent manufacturer and marketer of lawn care and outdoor maintenance products.

Russell Vandehey, *left, an Oregon State University senior, receives a $500 TUCO Turf Scholarship from Randy King, a representative of TUCO at the recent 36th Northwest Turfgrass Conference in Yakima, WA. The scholarship is awarded for scholastic ability, personal integrity and career interest in turfgrass management. TUCO is part of the Upjohn Company.*

EQUIPMENT

OMC Lincoln announces sales contest winners

OMC Lincoln, manufacturer of the Cushman Front Line tractor-mower, recently announced the winners of a nationwide sales contest for its dealers' salesmen. To qualify, salesmen had to meet unit goals within a specified time. Winners were then picked at random.

First prize winner of the Caribbean cruise was Jerry McKee with Lawn & Turf, Inc., Conyers, GA. Second place winner was Jerry Adank, Illinois Lawn Equipment, Inc., of Orland, Park, IL. He will receive a trip to Atlanta, GA, coinciding with the annual Golf Course Superintendents Association of

Continued on page 18

There's always a leader the others try to match...

That's the unmatched story of Toro Super 600® sprinklers

When we introduced our Super 600 pop-up sprinklers a couple of years ago, we felt we had a winner. But we waited for *your* judgment ...and the verdict came in fast. You quickly made Super 600 your first choice among all low-pressure large-radius pop-up heads. Now, thoroughly tested and proved in the field, the Super 600 stands alone as the one the *others* would like to be. For lots of good reasons:

Works at pressures as low as 25 PSI...Matched precipitation nozzles at 1.3, 2.5 or 5.0 GPM...Adjustable arc, 45°-315° and full-circle...Strong, stainless steel spring for positive, dependable retraction...Gear-driven rotary with adjustable radius to 50'... Smooth-working gear drive permanently sealed and lubricated... Riser seal to keep out sand and debris.

Toro Super 600...versatile, reliable, proven in the field. No wonder the others try to match it. No wonder they *can't!*

The Toro Company, Irrigation Division
Dept. WT-283, P.O. Box 489, Riverside, CA 92502

TORO®

EXCELLENCE IN IRRIGATION

Circle No. 152 on Reader Inquiry Card

NEWS *from page 16*

GOVERNMENT UPDATE

EPA director speaks to OTF

Edwin Johnson, director of Pesticide Programs of the Environmental Protection Agency, told delegates of the Ohio Turfgrass Foundation Show in December that pesticide registration procedures have been adjusted and registration activity has increased. The result looks like more new fungicides, growth regulators, and insecticides in the near future.

However, Johnson indicated preliminary results of a pesticide user survey to golf courses show a much higher amount of pesticides per acre used than in agriculture or nursery. Such data could draw critical attention to the use of pesticides by superintendents in the future.

The fact that Johnson, a national figure who has served three administrations as director of pesticide programs, spoke at a state turf conference shows a greater involvement by EPA in state affairs and the increasing sophistication of state turf conferences.

Johnson said pesticide registration activity has increased by half due to efforts to catch up on backlogs, shorten turnaround, and meeting with manufacturers before they submit registration documents.

Johnson urged showgoers to take advantage of comment periods for hearings on legislation to get their views across. He cited an example recently where no comments were received from the nursery or forestry industries on legislation affecting them.

Followup shows fewer waste sites

A phone followup of a hazardous waste site permit applications found that a fifth of those sites were not actually handling hazardous wastes or were no longer in business. A second part of the application procedure will seek to better identify hazardous wastes stored on sites according to EPA.

Most waste handlers are small operations except for underground injection wells. However, landfills and incinerators are the primary off-site handlers of hazardous wastes. Only 125 facilities said commercial hazardous waste management is their primary business. EPA originally identified 9,863 facilities to survey and the phone followup says only 7,800 of these handled hazardous waste in 1981.

Tax loss limit may cut tree work

Effective January 1, 1983, casualty losses as a tax deduction are limited to 10 percent of adjusted gross income. This change, "will have a significant effect on the need for tree evaluations for tax purposes," says Robert Felix, executive director of the National Arborist Association. The need for evaluations and appraisals for insurance purposes remains.

America Show. Third place winner of $500 in cash was John Barry with Sawtelle Brothers, Swampscot, MA.

LANDSCAPE

20 colleges attending ALCA Field Day

Richland College in Dallas, TX will host the Seventh Annual ALCA Student Field Day, scheduled for March 25-27. Over 20 colleges have already planned to participate in this year's events.

The ALCA Student Field Day is a three-day competitive event among students from horticulture programs from colleges and universities across the country. Students have a chance to compete in events which are directly related to the skills necessary in the horticulture industry. The students are also able to meet professional landscape contractors.

For more information, call Richland College at (214) 238-6314 or ALCA at (703) 821-8611.

TURF

Golf, lawn care highlighted at Penn. Turfgrass Show

Educational sessions in Golf Management and Lawn Care and Grounds Maintenance will highlight the 1983 Pennsylvania Turfgrass Conference & Trade Show, Feb. 28 to March 3 at the Hershey Lodge & Convention Center, Hershey, PA.

The General Sessions Monday afternoon and Tuesday will include discussions on gypsy moth, aerial application of fertilizer and pesticides, the turfgrass seed industry, urban turf management, toxicology, cemetery maintenance, use of microcomputers, ornamental maintenance and turf management at the Greenbrier in West Virginia.

Wednesday and Thursday's programs will offer separate sessions for golf turf and lawn care and ground maintenance. Golf turf sessions will focus on sand injection of greens, sand selection, managing turf under moisture stress, fairway renovation, disease research, winter injury to perennial ryegrass, insects on golf courses, colonial bentgrass breeding, nitrogen uptake and high temperature stress.

The lawn care and grounds maintenance sessions will feature presentations on pre and post-emergent weed control, stadium and practice field

Continued on page 84

Even in shade

ECLIPSE

KENTUCKY BLUEGRASS

outshines them all.

More proof that Eclipse is the quality Kentucky bluegrass that's a shade better...and better in the shade! In a three-year bluegrass shade study conducted under natural shade of locust and cherry trees by the Virginia Polytechnic Institute, only Eclipse was rated best in shade performance each year of the test.

Low growing, dark green, disease and insect resistant, Eclipse is the ideal base for sod blends and turf seed mixtures for golf courses, parks, playing fields, and home lawns, coast to coast.

Eclipse gives you the best of both worlds—outstanding overall turf performance plus superb shade tolerance. Any way you look at it, Eclipse outshines them all.

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JACKLIN SEED COMPANY, W. 5300 Jacklin Avenue, Post Falls, Idaho 83854
PACIFIC GREEN—NUNES, Camarillo, California 93010; Patterson, California 95363
PIONEER HI-BRED, Turf Div., P.O. Box 346, Savage, Minnesota 55378
ROTHWELL SEEDS (IN CANADA), P.O. Box 511, Lindsay, Ontario K9V 4L9

Eclipse has been granted Plant Variety Protection Certificate No. 8000154

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Net Contents 2 Gallons/7.57 Liters
Diamond Shamrock
Daconil 2787
Flowable
Fungicide
Turf Care
Danger

Proof that the best fungicide costs less.

There's no doubt why Daconil 2787® flowable fungicide is the preferred fungicide on America's tees and greens. It consistently delivers superior control of 9 major turf diseases.

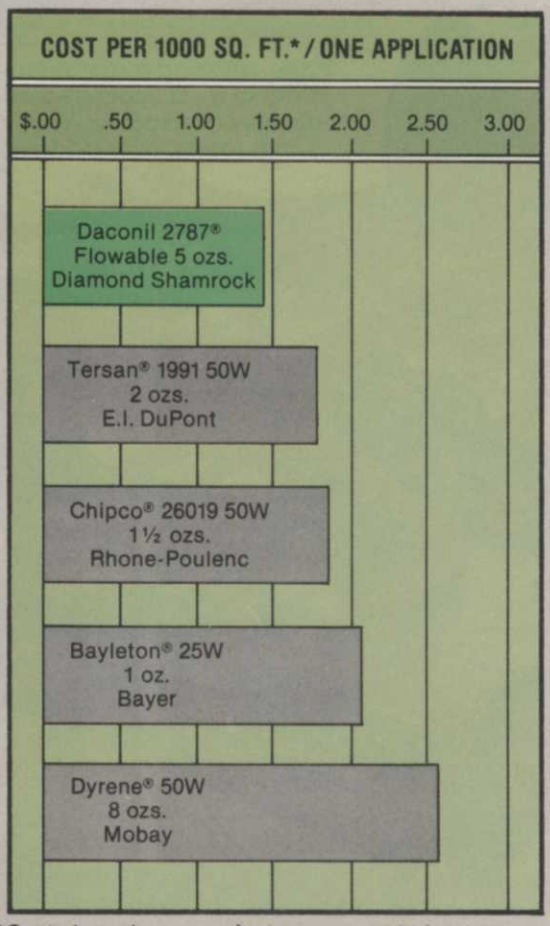
But what you may not know is that Daconil 2787 is more economical to use than the other leading fungicides.

Using a typical 14-day schedule, Daconil 2787 gives you greater savings on a per 1000 sq. ft. basis when it comes to controlling your most serious diseases — dollar spot (including benomyl-resistant dollar spot), Helminthosporium (leafspot and melting-out) and large brown patch.

Take a look at the chart. See for yourself how the cost of Daconil 2787 compares with the other leading fungicides on tees and greens.

Here are more reasons why it pays to use Daconil 2787. There's no need to add a costly spreader/sticker. Daconil 2787 already has it built in to assure full and even coverage for maximum disease protection.

And Daconil 2787 resists wash-off, so it keeps on working during heavy rains or watering.



*Costs based on manufacturer suggested retail unit price as of January, 1983.

What's more, in 15 years of continuous use, there has never been a documented case of resistance with Daconil 2787. Even on courses where it was applied at weekly intervals over many years.

The facts speak for themselves. You can't buy more effective, more consistent disease control on tees and greens than Daconil 2787.

Add to that the important cost savings you get spray after spray, and you'll see why Daconil 2787 gives you more for your fungicide dollar.

So this season go with Daconil 2787 from Diamond Shamrock. Because the best costs less.

Diamond Shamrock

Agricultural Chemicals Division
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Cleveland, Ohio 44114

Always follow label directions carefully when using turf chemicals.

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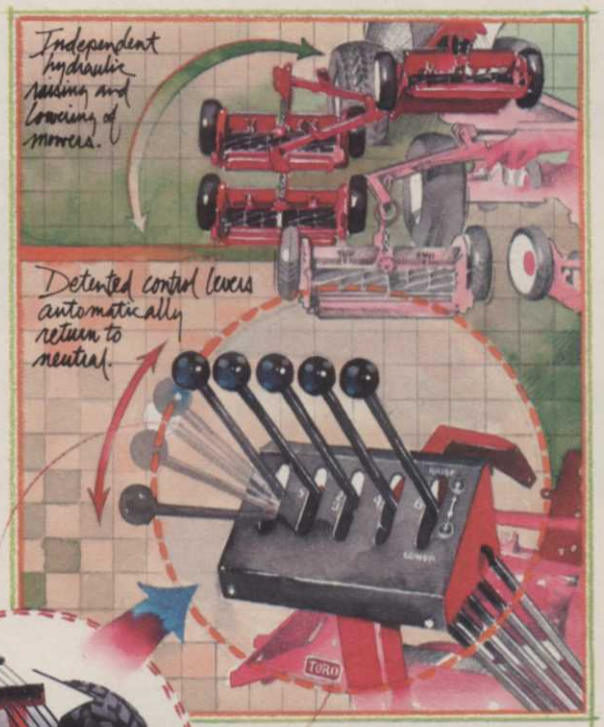
We started with 7 reel mowers that hydraulically lift on command, in various combinations, to give you cutting widths of 6'9" to 14'4".



Plus, amazing maneuverability in tight spots as well as easy transportability down roads, over bridges, through gateways, wherever you want up to 9.4 acres an hour of formal cutting. With an excellent quality of cut.

We put on high flotation tires to reduce marking of turf, create more stability on hillsides.

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We gave you a choice of three great mowers. Our Spartan 5 or 7 blade. Or our new Reelmaster 11 blade. And we incorporated Toro durability throughout. To keep you cutting day in, day out.

Call your Toro distributor. He'll tell you all about our Reelmaster Transport Frame and why it makes high capacity formal cutting three ways easier:

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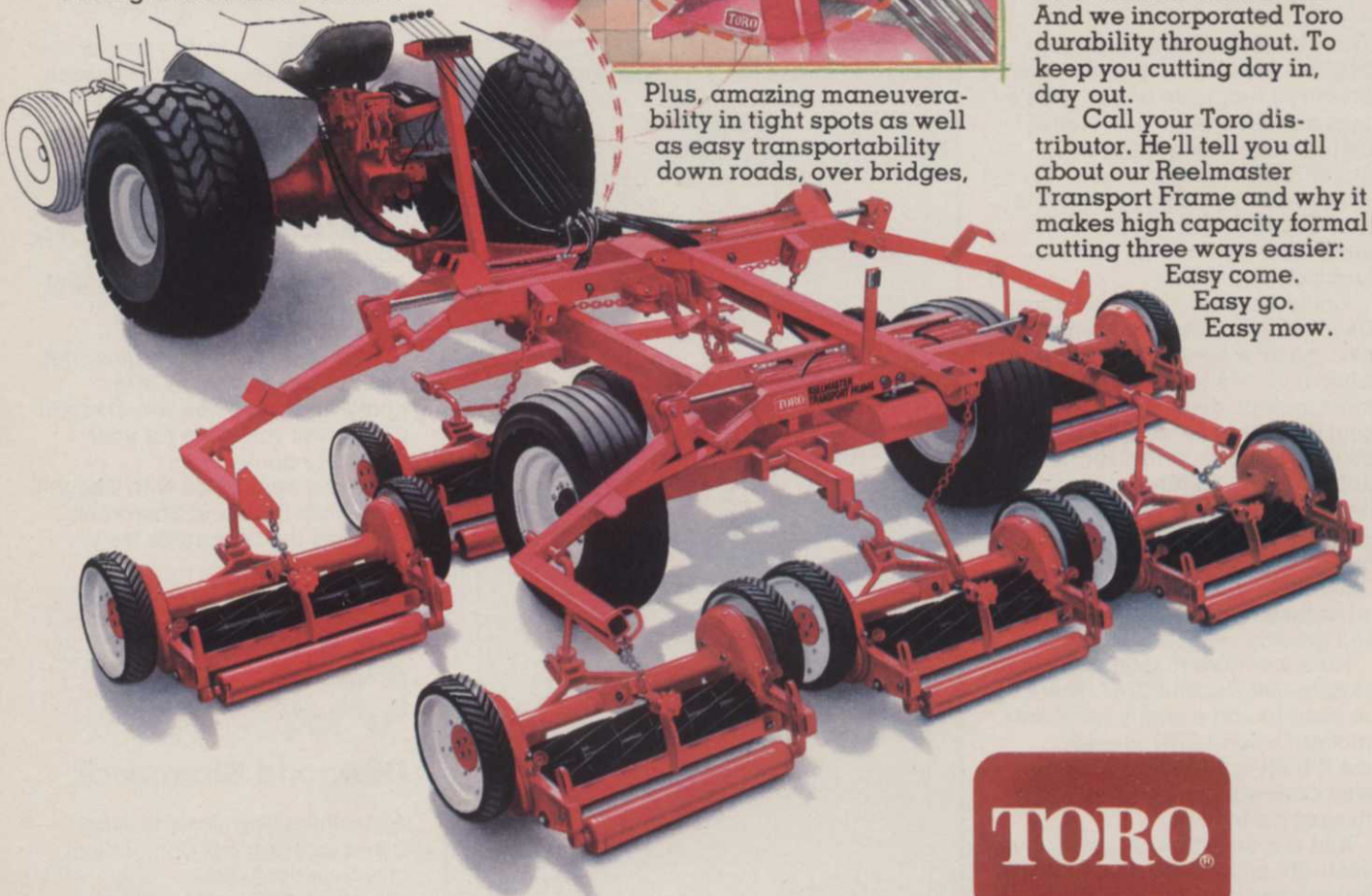

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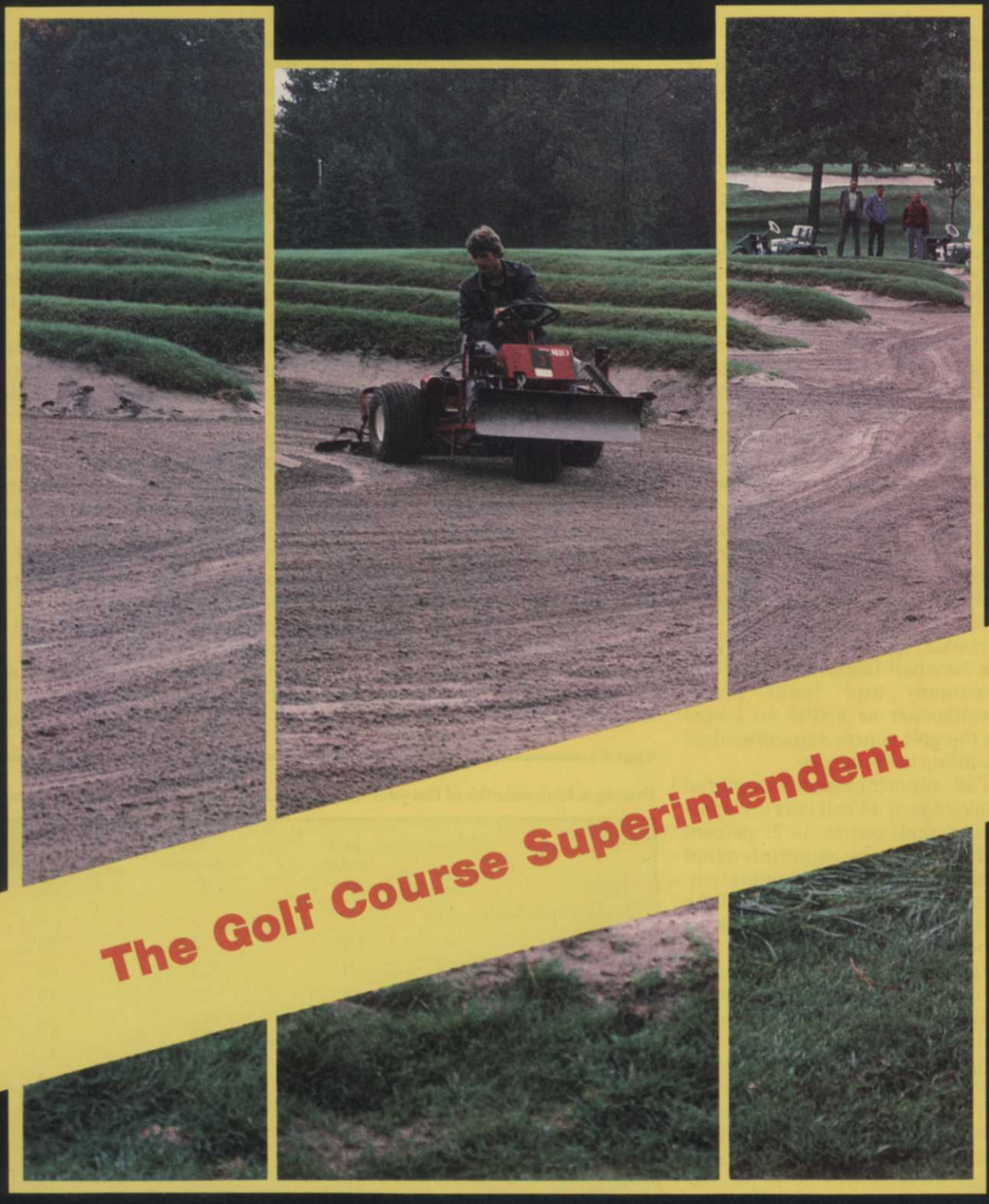
LANDSCAPE MANAGEMENT



The Golf Course Superintendent

WEEDS TREES & TURF

Research in LANDSCAPE MANAGEMENT

GOLF: THE BLUE CHIP OF THE GREEN INDUSTRY

More than 20 percent of the golf course superintendents polled by *Weeds Trees & Turf* magazine in November say their course is part of a real estate venture. Recent National Golf Foundation statistics show 80 percent of the 150 golf courses opened in 1982 were linked to real estate developments. Clearly the future of golf is highly dependent upon fairways lined with homes and condominiums.

The property of the golf course is being realized for its value. The superintendent's role in the management of the property may have increasing significance as a result. The survey showed 80 percent of the superintendents are responsible for the clubhouse landscape, 28 percent in charge of the clubhouse building, 22 percent responsible for tennis courts, and 21 percent in charge of the Pro Shop. Responsibility extended for some superintendents to pools, sod and tree nurseries, picnic areas, parking lots, baseball fields, a marina, and apartment and hotel areas. Greenkeeper as a title no longer fits the golf course superintendent according to the survey.

The superintendents reported an average of 44 golf cars are operated on their course. In 27 percent of the cases the superintendent manages the golf car operation. Pros do the job in 48 percent of the cases. Others perform the task on 25 percent of the courses.

The salesman for the turf supply company is the superintendent's leading advisor on maintenance problems, being consulted twice as frequently as the extension agent, 61 to 30 percent. Following extension agents are other superintendents as advisors in 25 percent of the cases. The technical staff of associations are consulted by 15 percent of the superintendents for maintenance problems.

Nevertheless, participation by superintendents in associations is extremely high. Nearly half the superintendents belonged to both the Golf Course Superintendents Association of America and their local association. A third indicated some involvement with the United States Golf Association Green Section.

Superintendents do most of their budgeting and planning from October through December. Chemical buying is heaviest in March through May. Equipment buying is greatest in January through April.

The survey indicated a greater percentage of private and semi-private courses than NGF's figures. The percentage of municipal courses, 17 percent, agreed with NGF. Our survey respondents represented private courses in 53 percent of the cases and daily fee/semi-private in 35 percent. This may account for the 22 percent attached to real estate developments. But, the dominance of real estate venture courses may tip the scales toward private and semi-private in the future.

Two thirds of the superintendents manage 18-hole courses, 23 percent manage 9-holers, and 10 percent manage courses of 27 or more holes. On an average, the superintendents oversee 132 acres of course area.

The average crew consists of 1 foreman, 4 year-round employees and 5 seasonal workers. A fourth of the superintendents had no foreman whereas 10 percent have 2 or more foremen, a figure aligned to the percentage of 27 or more hole courses.

The message that cart paths are management assets has been received by the superintendents participating. Eighty-eight percent had cart paths of some type. Asphalt was the construction material for two-thirds of the group, gravel for 45 percent, and cement/concrete for 9 percent.

An average of 60 acres of golf course is irrigated. Greens are irrigated by 94 percent of the superintendents, tees by 92 percent, and fairways by 68 percent. Another 11 percent said some fairways are irrigated. Only three

Continued on page 26

TABLE 1

During which months of the year do you.....(Multiple answers)

	plan budget	buy chemicals	buy equipment
Base: (total reporting)	91	97	92
January	15%	15%	23%
February	9	22	28
March	2	33	38
April	4	34	29
May	3	25	11
June	8	16	4
July	3	19	5
August	9	14	2
September	18	20	2
October	31	20	13
November	33	22	17
December	27	9	18
As needed	-	1	9

The Ditch Witch 350SX, a 35-HP-class lawn plow that's compact enough to go through a 36-inch gate.

Ditch Witch Vibratory Plows . . .

INSTALL PIPE UNDERGROUND *WITHOUT* DIGGING TRENCH!

By reducing installation and restoration time, Ditch Witch vibratory plows can be the fastest, most economical way to install pipe for underground sprinkler systems.

And since you don't have to dig trench, there's none to fill in. Damage to expensive turf is minimal; restoration is quick — usually all that's needed is to drive over the small slit left by the plow's blade.

Ditch Witch has a full line of vibratory plows — from compact models for residential work to bigger machines for golf courses and parks. They all let you put in plastic pipe without trenching, as well as control wire and electrical and communications cable, too.

Find out more from the Ditch Witch dealer in your area. Or write The Charles Machine Works, Inc., P.O. Box 66, Perry, Oklahoma 73077.

Ditch Witch.
Don't settle for less!

Ditch Witch®

Circle No. 115 on Reader Inquiry Card

Blue Chip *from page 24*

percent said the entire course was irrigated.

To gauge the activity of golf courses we asked for rounds played each month throughout the year. Approximately half of the superintendents reported no rounds played in December, January, and February. A third reported no activity in March. But nearly half reported activity year round.

The busiest months for superintendents nationally are June, July and August with more than 4,000 rounds per month each as an average. The slowest months are December and January with an average of roughly 725 rounds played each month.

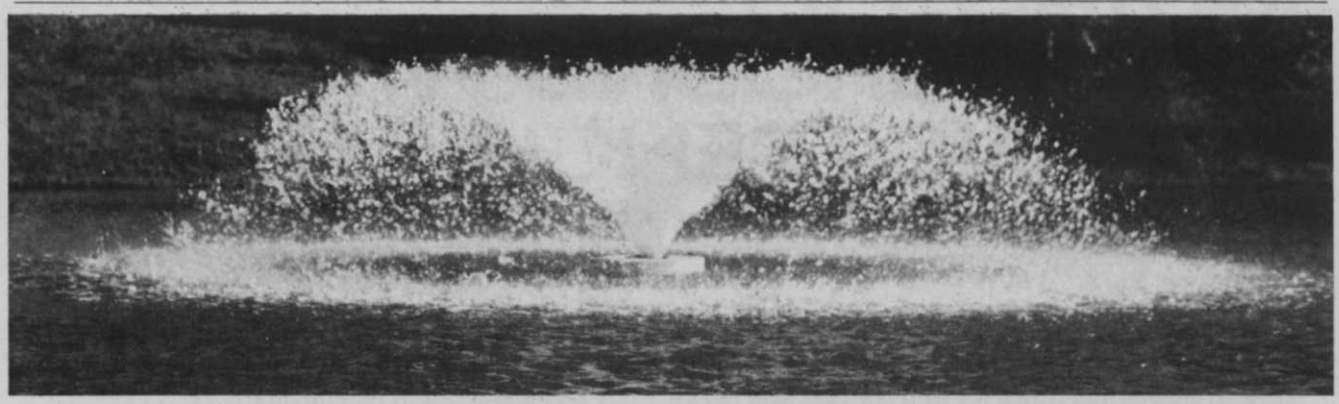
Superintendents have a high regard for education with only 5 percent saying a turf, agronomy or horticulture degree was unnecessary. Nearly 60 percent felt such a degree was a great help and more than a third felt it was helpful. Compare this to a 16 percent figure for landscape contractors who indicated such education was something they look for in hiring.

TABLE 2

Please list by month the estimated number of rounds played on your course.

Base: 72 (total reporting)			Number of rounds played:			
	Mean	0	1 — 1000	1001 — 3000	3001 — 5000	Over 5000
January	698	51%	35%	7%	3%	4%
February	793	50	35	6	6	4
March	1274	33	36	17	10	4
April	2109	7	38	31	17	8
May	3271	-	24	36	24	17
June	4018	-	15	33	28	24
July	4336	-	14	28	35	24
August	4137	-	14	31	33	22
September	2987	1	22	36	31	10
October	2017	3	40	38	11	8
November	1220	22	46	19	10	3
December	711	46	36	11	4	3

Between the National Golf Foundation's figures, the GCSAA and USGA educational support, and now a forum of organizations determined to protect the vitality of the game of golf, this prime Green Industry is in good hands. It may not be experiencing the same phenominal growth of the 1960's, but it's foundation is so strong it enjoys a security not found in other fields. It's the blue chip stock of the Green Industry. **WTT**



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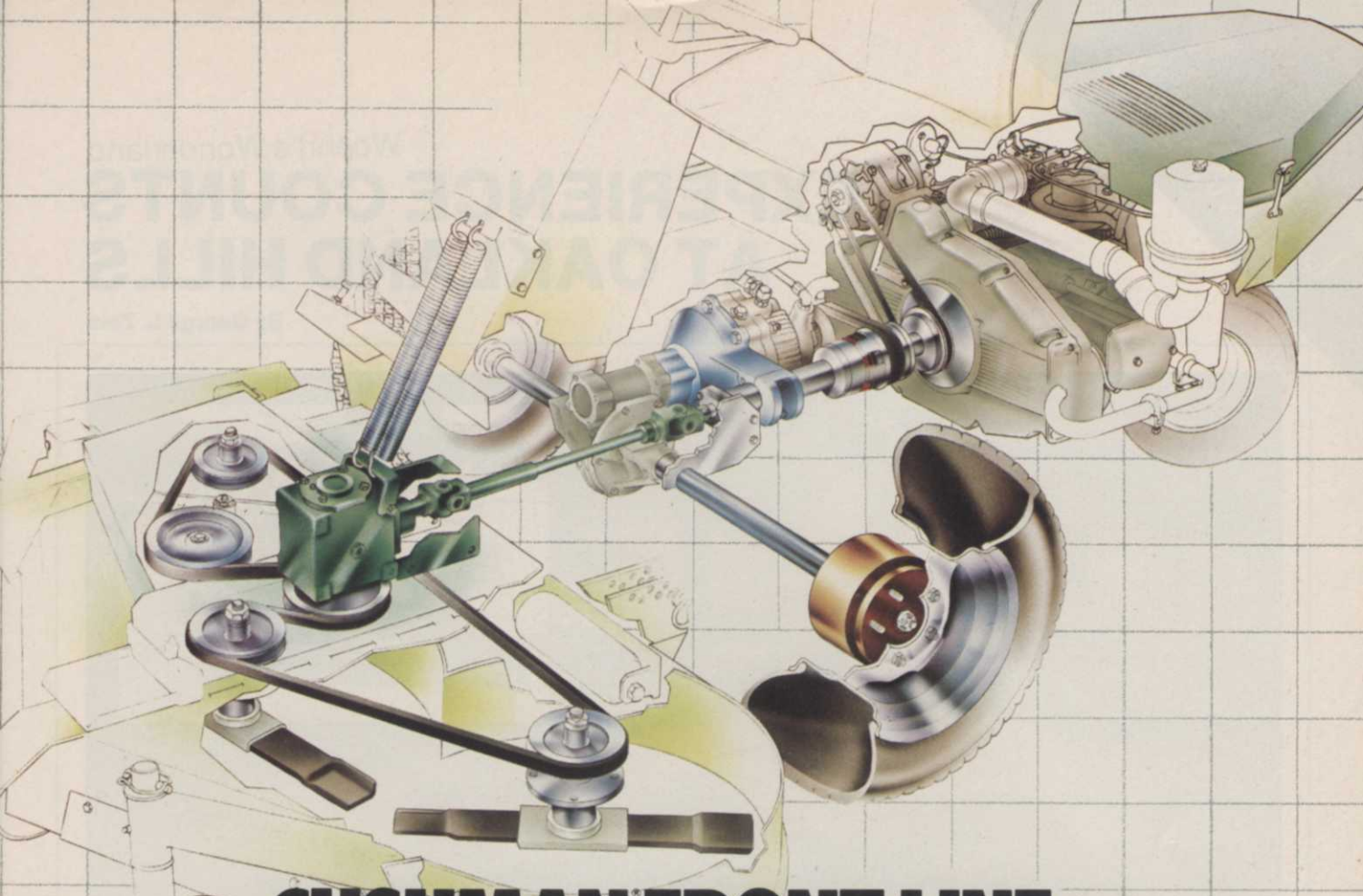

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Just 3 years after it was introduced, the Front Line has been put to work on more parks, more campuses and more golf courses than all other mowers but one.

And in what really counts, the Front Line is second to none.

THE ONE-OF-A-KIND CUSHMAN POWER TRAIN.

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While other mower engines are built for constant speed use, our air-cooled engine was designed for the multi-speed work mowing demands—lugging power at low speeds, agility at faster speeds.

Move down the power train, and you'll appreciate one thing more—each major component was designed specifically for that engine.

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However else you may judge a mower, the Front Line gives more than you might expect.

Long life engine parts. A torsion-reinforced deck. Traction assist. Optional antiscalp rollers. A choice of 60″ or 72″ decks, side or rear discharge. And a full range of accessories for year 'round maintenance work.

For a free demonstration on your grounds, contact your Cushman dealer or call us toll-free at 1-800-228-4444.

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Circle No. 111 on Reader Inquiry Card

Profiles in LANDSCAPE MANAGEMENT

Woehrl's Wonderland

EXPERIENCE COUNTS AT OAKLAND HILLS

By George L. Zeis

The latest mower *at Oakland Hills is hydraulically and electrically operated and used extensively on fairways and greens. (Inset)* **Communication** *is the only way to make sure members know how you maintain and improve their course. Woehrle keeps in touch with members.*

Experience counts in the business of golf course management. Each day Oakland Hills Country Club, 20 miles north of Detroit, draws from the experience of Ted Woehrle, former president of the Golf Course Superintendents Association of America.

Woehrle started his career with a degree in agriculture from Purdue University and then built his base through superintendent positions at Chicago's Beverly Country Club, The Country Club of Florida in Delray Beach, and Point-O-Woods in Benton Harbor, Michigan. He has held the head job at Oakland Hills for 14 years.

The posh club was completed in 1919. There are currently 300 acres under his care. The two courses, one par 70 and the other par 72, contain 118 sand traps. The longest fairway is 577 yards.

Woehrle reports directly to the Oakland Hills Country Club's General Manager. He operates on a job description basis. In other words, all his major responsibilities are spelled out in writing and have been approved by the Board of Directors.

There is also a Greens Committee which functions as a monitoring, recommending and advisory group responsible to the Board of Directors only. This committee is appointed by the Board to serve at the pleasure of the Board of Directors. It consists of a chairman, eight Class A members, two lady golfers, Greens Superintendent and the Club Golf Professional. The Club Manager and one member of the Board of Directors are officio members of the Greens Committee. The committee meets each month from March through October.

Woehrle is a firm believer in communicating with all groups involved. "I cannot assume that Club Board members are fully aware of the maintenance and improvements being made," he pointed out.

"For example, work was needed on our large water hazard. Pictures were taken before improvement

Continued on page 32

When water bills are out of sight, take a closer look at Citation.

Citation perennial ryegrass cuts your watering bill without cutting corners on turf quality.

Citation is a hard-use turfgrass that stands alone or mixes well with other varieties when a dark green surface is desired. From home lawns to golf courses, cemeteries to athletic fields, Citation is an exceptionally rugged turfgrass with improved mowability. Citation is resistant to Rhizoctonia brown patch and Fusarium blight, with moderate resistance to red thread and dollar spot.

Citation's all season performance has been proven year after year in actual service in the North *and* South. With professional supervision and careful cost monitoring, considerable savings in water and fertilizer have been realized. This can mean a better looking bottom line for your operation.

With Citation you'll be praised for what you've raised, and raved for what you've saved.

Plant Variety Protection Number 7500003

Developed and produced by

Citation Turf-Type Perennial Ryegrass

It deserves a closer look.

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Variable speed drive on tractors and self-propelled mowers independent of engine and blade-tip speed.

Finger-tip steering on self-propelled mowers and precision steering gear on tractors for highest maneuverability.

Blade engagement control.

Commercial engines matched to mower size and mowing conditions.

Pneumatic tires with puncture proof sealant on 32 inch widths and up.

Wide range of cutting heights.

Close trimming deck designs.

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Heavy gage welded steel construction. Reinforced at stress points.

Suction-lift, sickle steel blades mulch and discharge clippings evenly to right hand side.

Turf wheels available on 36 inch widths and up negotiate rough terrain. Wheels for fine lawns available on 52 inch widths and smaller.

Large selection of cutting widths.

Contract numbers
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If you've ever been around people who are bragging about their "Bunton", you know how zealous they can be. The dependability... the fuel efficiency... the performance... the price... nothing but rave reviews.

Bunton builds 108 different mowers, each with different features to solve a specific lawn maintenance problem. The good news is that *all* Bunton lawn maintenance equipment is built the same way, whether you need turf tractors, self-propelled mowers, push mowers or edgers/trimmers.

Bunton builds specifically—and nothing but—high quality lawn and turf maintenance equipment. When you discover Bunton, you will understand why these mowers are the professionals' best friend.

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Circle No. 106 on Reader Inquiry Card

work was started, while it was being done and after the job was completed. There is nothing that will beat pictorial reporting on situations like this."

What does it take to operate and maintain the Oakland Hills Country Club? "Lots of money, lots of planning and a lot of attention to detail," Woehrle pointed out. "Our budget is about $400,000 annually."

Woehrle points with pride to the tournaments that have been held at Oakland Hills. They include four U.S. Opens—the fifth to be played on this course in 1985; a Western Open and two PGA Tournaments. In 1981 the Second Annual Senior U. S. Open (for those over 50 years of age) was held at Oakland Hills Country Club and attracted a number of professional golfers.

During the peak summer months, 25 people are on the golf course payroll. The season runs from April 1 to December 1. Peak employment starts in June and tapers off gradually in September. College students constitute the largest number of part-time workers during the summer months.

Ten of these employees work about 10 months of the year. This group functions as a skeleton crew during the off-peak work season. Three remain on the payroll the entire year.

Top wage scale for the longer period workers is $6.25 per hour. Summer help is paid $3.75 per hour. Full time employees are covered with Blue Cross/Blue Shield insurance, have paid holidays and come under the Teamsters Retirement Program.

"I can't assume that Club Board members are fully aware of maintenance and improvements."

While Oakland Hills may not have the difficult layout of Pebble Beach, it has real eye appeal. All fairways are creeping bentgrass. Automated irrigation of all fairways is available during dry periods. Fifty-five thousand feet of irrigation line, starting with eight-inch mains down to one-and-one-half-inch lines carry water down all fairways. Heads are spaced 90 feet apart.

Careful attention *to cutting equipment minimizes down time. Woehrle takes a personal interest in equipment maintenance.*

"We have three wells," Woehrle pointed out, "from which water is pumped into two resevoirs, one of which is an acre-and-a-half. "During dry periods we use as much as a million gallons of water per night. Watering is done three times per week during drought periods. This means we could use as much as 12 million gallons of water per month. We had a dry 1982 summer and did a lot of irrigating."

Approximately 400 pounds of bentgrass seed are used per year to maintain the excellent quality of fairway turf. Barring loss of turf, for whatever reasons, Woehrle pointed out that his bent turf withstands considerable wear and tear but holds up well.

Approximately 45 tons of various analysis fertilizer are used per year. Ordering is done in October; delivery is made in November and payment is made in December. Handling fertilizer purchases this way, Woehrle pointed out, gives him a savings of about nine percent.

Approximately 50 gallons of herbicide are used each year and includes dicamba, MCPP and 2,4-D. Applications of herbicide are made in the spring when plant growth is at its best.

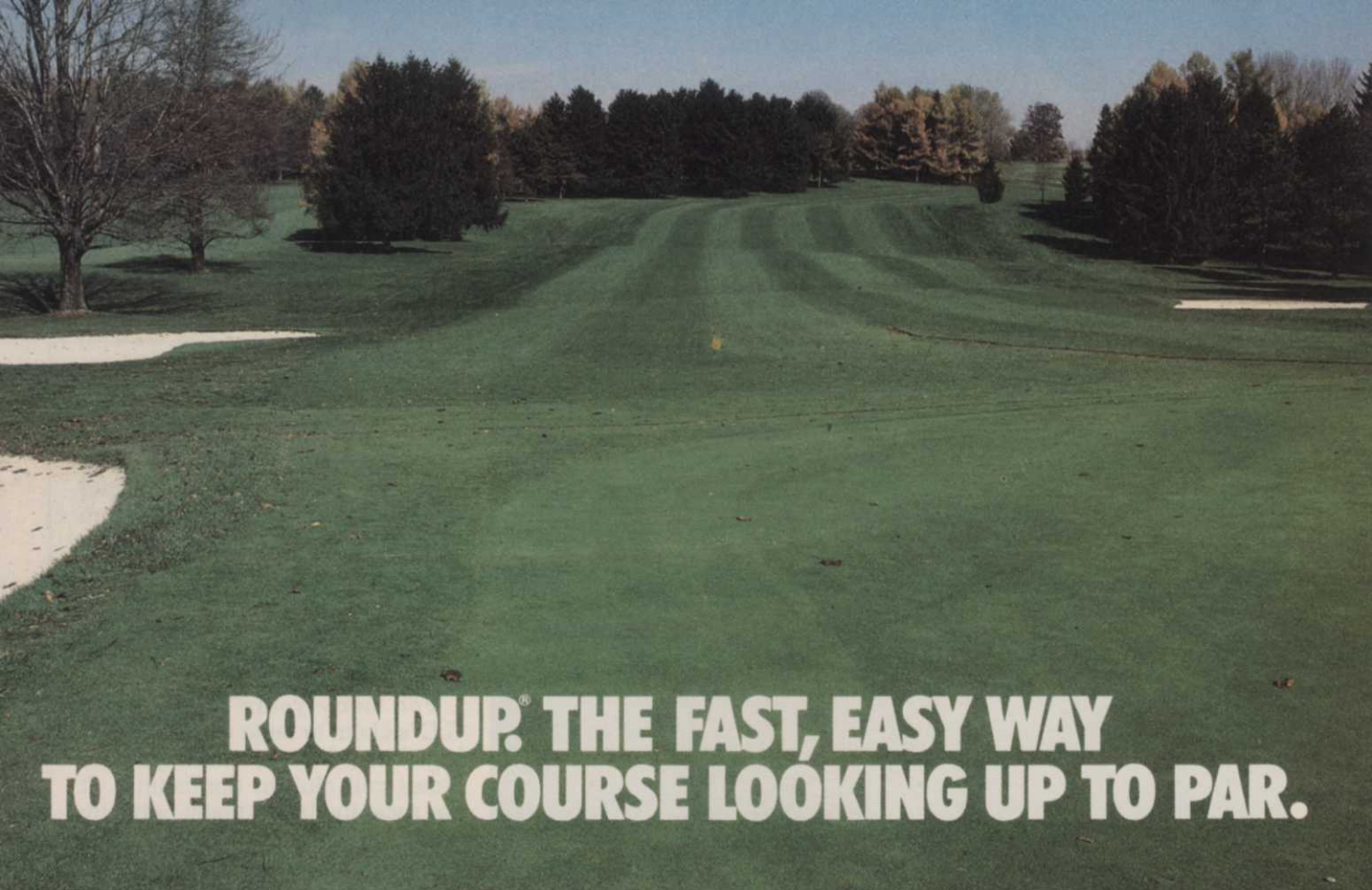
Mowing and maintenance equipment take a good share of the annual budget. Seventy mowers are owned by the Oakland Hills Country Club. Most are the reel type. Rotary mowers are used only for trimming along fence rows and similar areas.

Seven gang mowers of the reel type are used, each cutting a swath 18 feet wide. Fairway mowers, including the tractors, cost approximately $25,000 each. The reel mower attachment, alone, costs about $9,000 each.

A special Toro reel mower was purchased in 1982 for $16,000. It is hydraulically and electronically operated (via a gas engine) and is used extensively on fairways and greens. It cuts an 84 inch swath. Another special feature of the mowing unit is the attachment for catching grass clippings.

Mowers are purchased from local dealers and include Toro, Jacobsen and Roseman.

"With the rather delicate nature of the mowers," Woehrle pointed out, "it is important to have the same operator use the same ma-



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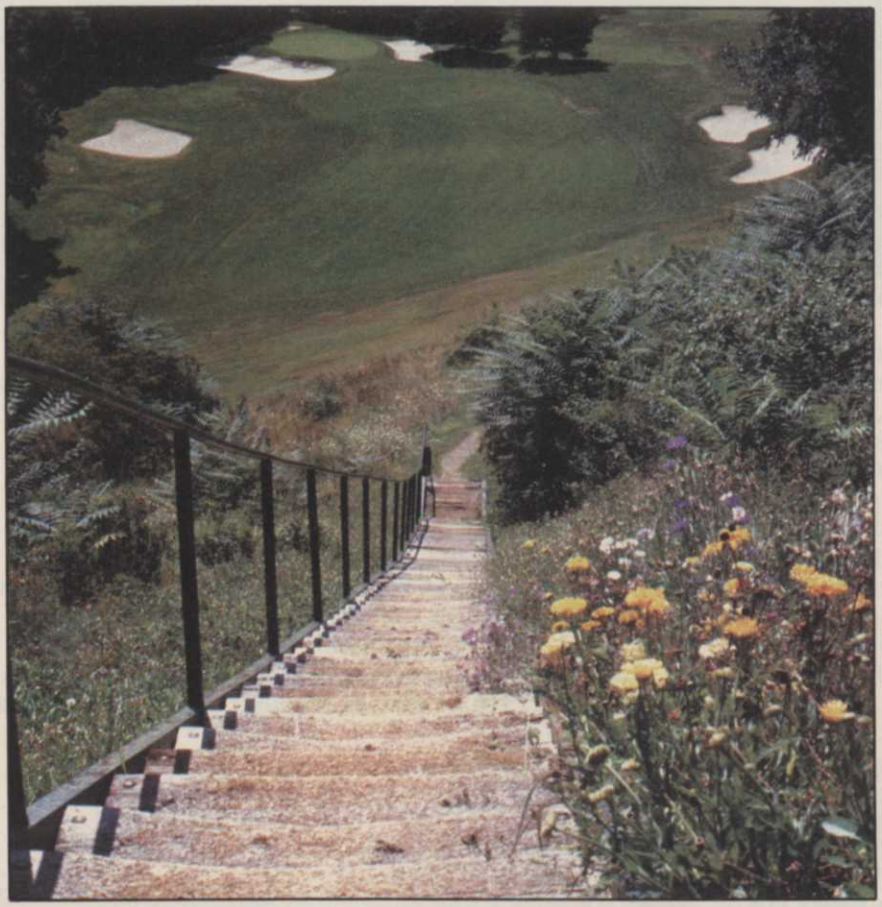
Profiles in LANDSCAPE MANAGEMENT

A Job for the Golden Bear and Larry Pakkala

SAVING ST. ANDREWS

By Thomas Paciello

Triplex mower *is much advanced compared to mowing methods when the course opened in 1888.*



Holes like this *will be preserved to maintain the historic and scenic value of the original course.*

"There's too much waste. Golf course superintendents should be looking for ways to save money." That is the attitude that helped Larry Pakkala revive a financial sagging Mid-Ocean Country Club in Bermuda. His talent for cutting costs and still producing top quality landscapes landed him the superintendent job at St. Andrews Golf Club, Hastings-on-Hudson, NY.

For many years St. Andrews G.C.'s claim to fame was its founding date of 1888, making it the oldest golf club in the country. It has recently drawn much publicity when an attempt to subdivide and sell it was forestalled by golf legend Jack Nicklaus. With the club in poor financial shape members were planning to sell off the club real estate. Nicklaus was contacted and rescued the club from developers and bankruptcy by purchasing it through his company, Golden Bear Enterprises.

Members were planning to sell off the oldest golf club in the U.S.

With the historical legacy of St. Andrews intact, Nicklaus and his associates proceeded to develop a plan to bring the club back to solvency. The result was "St. Andrews Village," as the new complex will be called. St. Andrews Village will be a totally redesigned 18-hole golf course and condominium complex. The original 18 holes (on 130 acres) will be remodeled into 14 holes while four new holes are constructed on the 70 acres of newly-purchased land. The 210 planned condominiums will also be built on the new land which overlooks the course.

The conversion from near-bankruptcy to St. Andrews Village

Continued on page 36

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has not been an easy one. Zoning regulations, planning boards and local politicos and environmentalists have set construction back, but Nicklaus hasn't flagged in his support. "This is a hard place to build," said Pakkala. "The costs are high and there is a lot of bureaucracy. There hasn't been any golf course construction in Westchester county in 20 years." St. Andrews is planned to shut down on October 31, 1982, and reopen in April, 1984. With construction being planned for November, 1982, golf course construction should take 15 months and condominium construction three years to complete.

During the club's down-time Pakkala will don his construction hat to supervise and oversee the numerous contractors. "I'll be particularly responsible for those contractors who haven't done golf course work before," said Pakkala. He'll also be coordinating the grading, seeding and sodding efforts. The course will be rebuilt to USGA specifications and the putting green and driving range will be enlarged. A godsend for any superintendent, automatic irrigation, will also be installed. The club had been using a manual system.

With membership at St. Andrews down to 100 (from 300) cash flow was a major problem and Pakkala's attitude of fiscal efficiency was just what the doctor (at St. Andrews) ordered: "I pride myself in cutting corners and still delivering a good product," said Pakkala. "With the money you save you can help bring your club back to better shape."

"I pride myself in cutting corners and still delivering a good product."

That was just what he had done at Mid-Ocean Country Club. Pakkala restructured the maintainance operation at Mid-Ocean and helped put the course on firm financial ground. His accomplishments there did not go unnoticed.

Pakkala, *who even drives compact trucks, will oversee and supervise the contractors during reconstruction.*

Golf Force, the golf course construction and maintenance subsidiary of Golden Bear Enterprises, learned of Pakkala while doing business with Mid-Ocean. When Nicklaus took over St. Andrews, Golf Force didn't have to look far for a fiscally responsible superintendent. After four years at Mid-Ocean Pakkala joined St. Andrews in March 1981.

"You should spend money to accomplish specific goals," said Pakkala. "A lot of superintendents tag on an inflation figure to their budgets each year and expect them to be boosted accordingly. Every year you should look at your budget and your course and decide what *has* to be done.

When a problem pops up that has not been budgeted for, Pakkala gets the money somehow; if its not readily available (as is often the case) he'll cut out a lower priority program.

In some ways, Pakkala points out, the golf course superintendent has been his own worst enemy. "The American golfer has been spoiled by the lush, plush conditions supplied by superintendents over the last 20 years," said Pakkala. "Golfers also travel a lot more so they get to see good conditions all year round." He added that with tougher economic times and tighter natural resources superintendents will be using different practices than they have in the past. They will be letting the rough grow more, not spraying as frequently and using different varieties of grasses to get better results with less maintenance. "It is the duty of the superintendent to convey his ideas to the members," he said. "If you don't create good public relations with the members you are in trouble. Most members are professionals. If you can explain what you are going to do in a diplomatic way, they will understand and you'll come out ahead."

"Some members complain because we're reverting to some of the old techniques, but I've never had a problem. I've got a good relationship with the membership here." Pakkala noted that some superintendents don't like to tell

Continued on page 80

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How many turf in this

Here's a clue. D·z·n® Diazinon® controls every insect you see here, from the root-eating white grub to the juice-sucking chinch bug. In fact, D·z·n Diazinon has the biggest label of any turf insecticide. And that makes it the perfect choice for broad spectrum control in both commercial and residential turf.

Need another clue? D·z·n controls damaging worms including

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insects are hiding picture?

cutworms, sod webworms and armyworms. Plus it takes care of nuisance pests like ants, fleas and chiggers.

We've mentioned 8 species on the label but that's not even half.

Keep counting. And when you place your next insecticide order, ask your supplier for the biggest label in the business—D·z·n Diazinon.

PS: You'll find the answer below.

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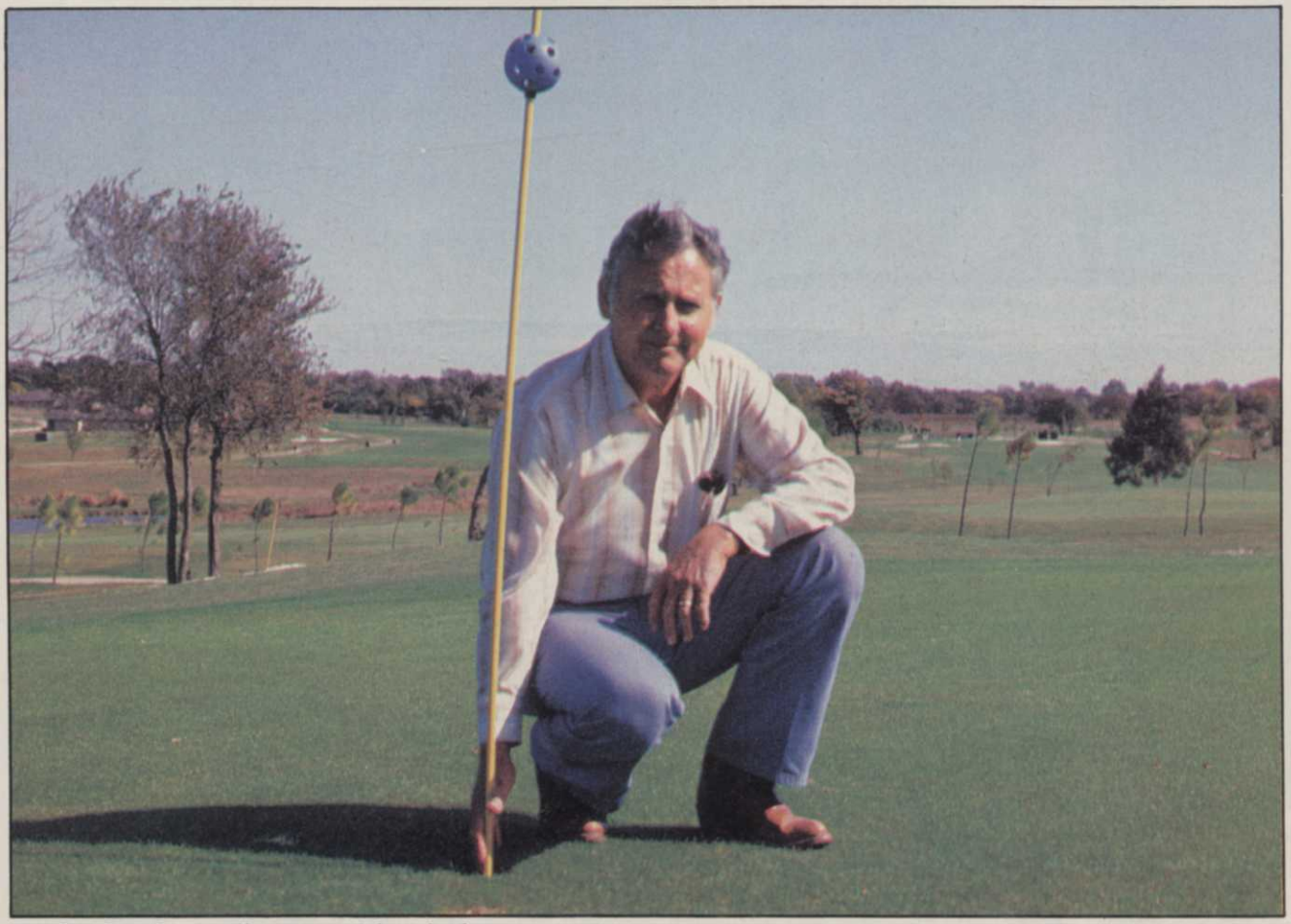
Answer: D·z·n Diazinon controls all twenty-three insects seen here.

Profiles in LANDSCAPE MANAGEMENT

Richard Hartline's Goal

ANOTHER STAR FOR TEXAS

By Maureen Hrehocik



Hartline kneels *proudly on one of the rebuilt greens.*

If Richard Hartline has his way The Shores Country Club in Rockwall, Texas, will soon be one of the leading championship courses in the state. In four years he has put the course well on its way with a series of refinements and improvements. The course has the potential, sitting on the shores of Lake Ray Hubbard in the center of a $200,000 and up housing development. As he states, "There is plenty of room near the clubhouse to accomodate a gallery for championship matches."

When Hartline became superintendent of the course, located 30 miles east of Dallas, he immediately reworked and reshaped the greens. He solved, for the most part, a severe drainage problem. He planted over 5,000 trees and installed a $100,000 cement cart path. It was all accomplished in about a year, and, Hartline says, he hasn't finished yet.

The 18-hole semi-private course was designed by Ralph Plummer. Hartline says one of the major selling points of the housing complex is the golf course.

Future improvements include diverting some of the water from the lake to make water traps. Hartline still has a drainage problem to contend with on some of the fairways. Nine more tees will be leveled and senior citizen tees will be added. Plans are in the works to build 23 more traps and plant 10,000 more trees—all within the next two years.

"I'm particularly proud of the back nine holes," Hartline says. "They have the best view of the lake."

With more than 267 acres of turfgrass in recreation alone (including the tennis court area) and 14,255 rounds played on the course up to October of last year, Hartline's maintenance schedule is fine-tuned. He and his crew of

Continued on page 42

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Pennfine Perennial Ryegrass covers more ground than any other turfgrass variety in the world. This message recognizes the people who made it happen.

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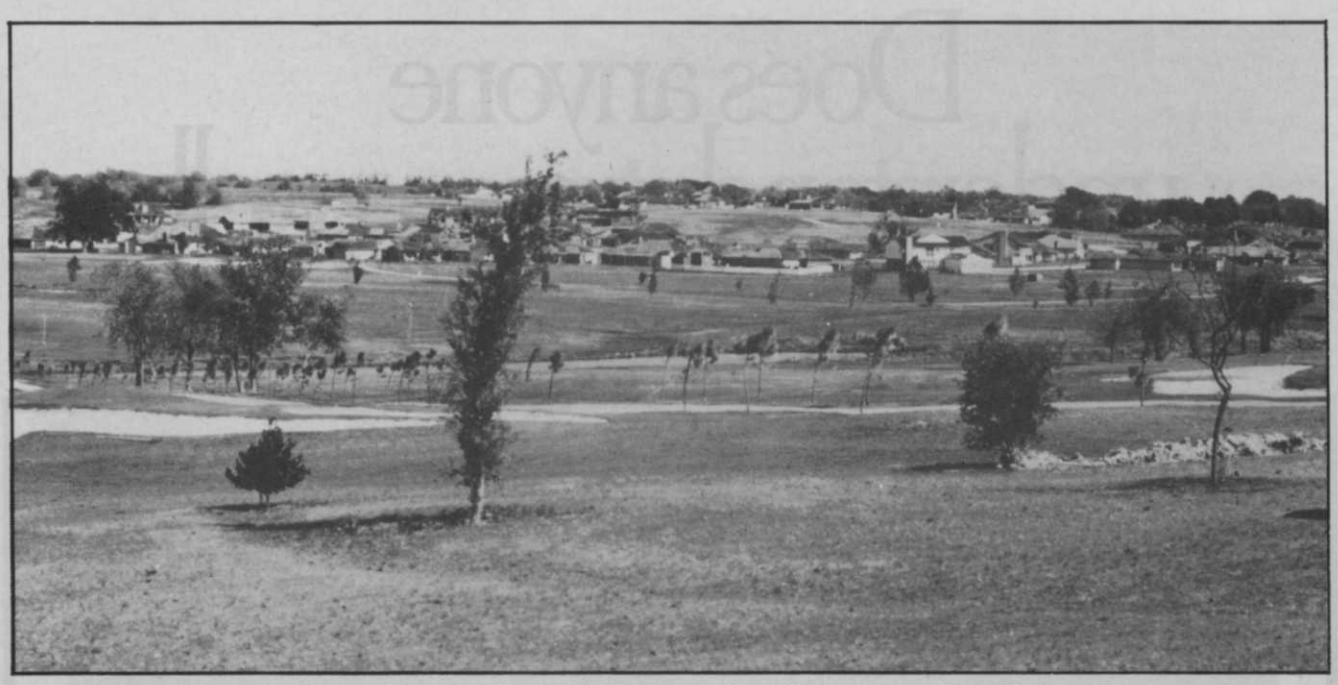

The complex *of $200,000 homes abuts one edge of the course. A few of 5,000 trees planted by Hartline's crew are in the background.*

eight (12 from March to November) fertilize greens and tees four to five times a year. Constant repair is needed on the turf near the cart path because of careless drivers. Weeds in the Bermudagrass greens are kept under control with Koban, usually applied five times a year.

Fairways are overseeded with common rye, tees with "Futura" and greens with "Futura" Plus. Hartline's winter overseeding includes cutting and thinning out the greens using "Futura" and a mixture of sand and compost. Turf on the greens is 328 Tifgreen with common Bermudagrass used on the fairways, roughs and tees.

> The golf course is a major selling point of the housing complex adjacent to the The Shores.

Fairways and greens are usually aerified twice a year, greens three times a year. Compost is used as the topdressing for tees and greens. Fairways, greens and tees are irrigated automatically with a Buckner system. Turbin pumps have a 1,200 gallon-a-minute capacity. Reclaimed water from the city of Rockwall is collected in a man-made lake to provide the water source. Five roughs have quick-coupler sprinkling systems.

Hartline's affinity for his work started as a boy growing up on a Texas farm. "I've always loved farmwork," he says. He got started in his profession when his family leased a farm next to the McKinney Country Club in Texas. Gradually, he started helping out, caddying and mowing the greens, even though at the time, it was hard for him to see over the top of the mower. Eventually, he began working full-time at McKinney.

Hartline became a Class A member of the Golf Course Superintendents Association of America in 1960. He had been a superintendent five years prior to that. Since then, he's worked at a number of courses in Dallas, Brookhaven Country Club in Carollton, TX, Eastern Hills Country Club in Garland, TX, Calabasas Country Club in Calabasas, CA, and began at The Shores in 1978. Besides the GCSAA, he is a member of the Texas Turfgrass Association.

"There's no limit to what you can do to beautify a golf course," Hartline says. "I'd like to make every hole a conversation piece as well as a challenge to play."

Hartline knows what he has to do to make The Shores the kind of course he'd like it to be. But the biggest challenge that faces him is the one that faces every other golf course superintendent—the weather.

"My maintenance program is always geared around fighting Mother Nature."

Another challenge Hartline finds is the fact that golfers as a whole are getting better and expect better-maintained courses. "We're seeing more and more golfers who expect courses to be in tip-top shape every time they play. Not getting the grass mowed because of the weather is no excuse."

> "I'd like to make every hole a conversation piece as well as a challenge to play."

With the ideas and improvements for the course Hartline has in mind, as well as the maintenance schedule he already implements, The Shores will have no trouble meeting the demands of golfers across the country. **WTT**

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Out Front Mowing – Cuts ahead of the wheels to eliminate tracking.

Hydraulically Driven Reels – Cuts wet or dry grass easily. Reels can be reversed from the operator's seat. Instant backlapping.

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System Implements – The Turfcat II system includes: 50", 60" and 72" rotary decks, 50" and 60" flail mowers, rotary brooms, plow, snow thrower and grass catcher.

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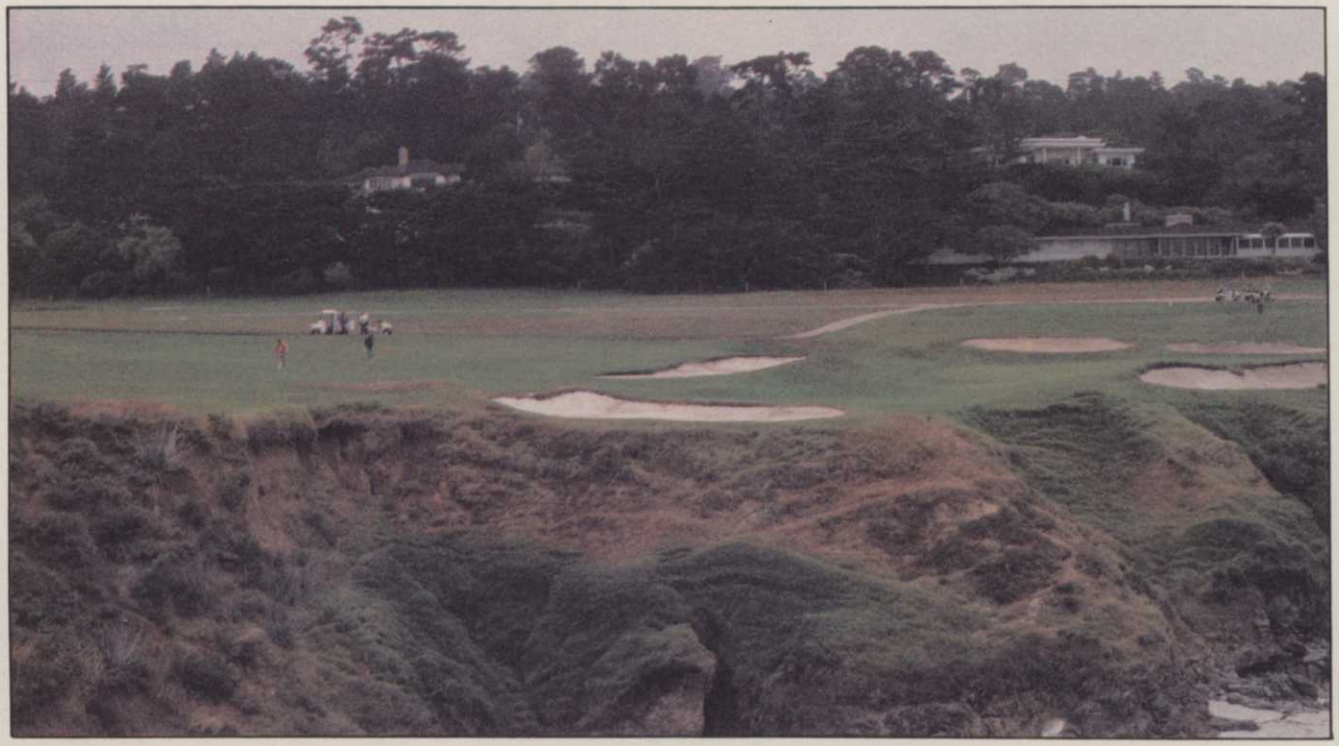
RENOVATION TUNES UP PEBBLE BEACH



Treacherous *along-the-ocean holes pose at Pebble Beach a particular challenge to greens superintendent Mike Phillips*

Mike Phillips, *superintendent at Pebble Beach Golf Links, overhauled his maintenance program to upgrade everyday playability on one of the nation's foremost courses.*

Long known as annual host to the Bing Crosby Pro-Am Tournament, Pebble Beach Golf Links also won the honor of hosting the 1982 U.S. Open. But a severe weed infestation and turf deficiencies jeopardized the quality of playability for the tournament Pebble Beach Company had worked so hard to get.

Faced with urgent requests for turf improvements from both the USGA and TPA, Mike Phillips, superintendent at Pebble Beach Golf Links and his staff met the challenge head on. They renovated several fairways and roughs, rebuilt many sand traps and implemented a fine-tuned maintenance program.

Phillips believes the challenge was really a blessing in disguise.

"We've had a history of terrible Kikuyu grass and although we knew the only way to control it was through renovation, we put it off. The request by the USGA and the TPA prompted us to renovate sooner," he claims, adding that the USGA's maintenance requirements, coupled with his own program, are helping keep the course in championship shape year-round.

Kikuya grass tends to form a thick mat (a thatch layer about two to four inches thick) causing a puffiness in the fairways.

"This puffiness caused the ball to set up high, producing flyer lies," Phillips said. "It became very difficult to mow fairways to a half-inch. With the renovation program complete, the new fairway turf was cut at a true half-inch."

Since Kikuyu grass is very prolific, reproducing by seed, rhizome and stolon, Phillips recalls that the grass spread from small, localized pockets over most of the fairways rather quickly. To keep the problem in check, he had his maintenance crews routinely hose down equipment operated in the infested areas after use to prevent seed transport. But, it still spread via wind, carts and golf shoes.

Phillips' controlled maintenance program has kept the Kikuyu grass

Continued on page 49

BETASAN® THE NUMBER ONE ANSWER TO YOUR NUMBER ONE PROBLEM ALSO CONTROLS EIGHT OTHERS.

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BETASAN® Stauffer CHEMICALS

No. 1 Against Crabgrass

Enemy No. 1
CRABGRASS

Enemy No. 2
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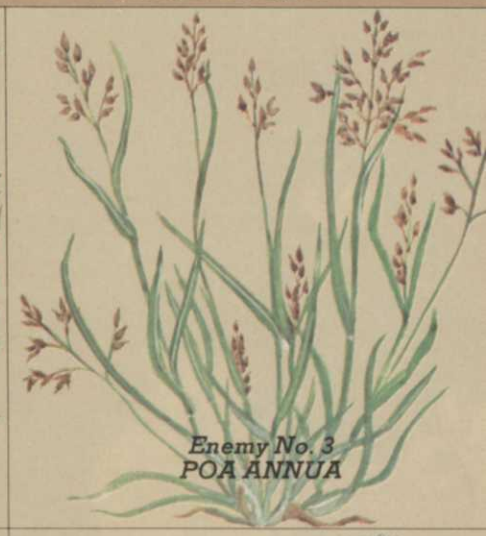


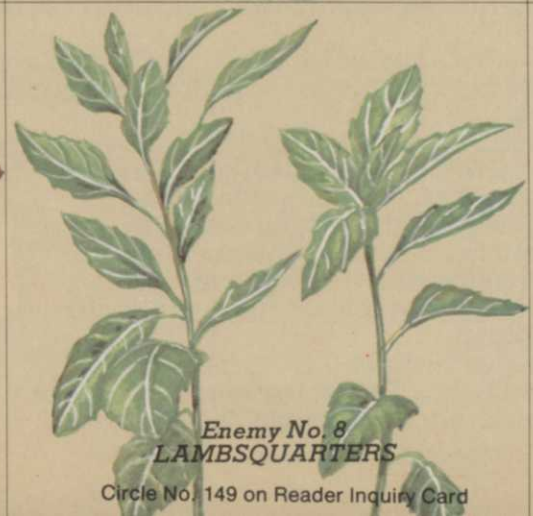
Enemy No. 3
POA ANNUA

Enemy No. 4
BARNYARDGRASS

Enemy No. 5
FOXTAIL

Enemy No. 6
REDROOT PIGWEED

Enemy No. 7
SHEPHERDSPURSE



Enemy No. 8
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Enemy No. 9
DEADNETTLE

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When Howard isn't in the lab he's on the links talking to superintendents, conducting field experiments and collecting new grass samples to bring back for testing.

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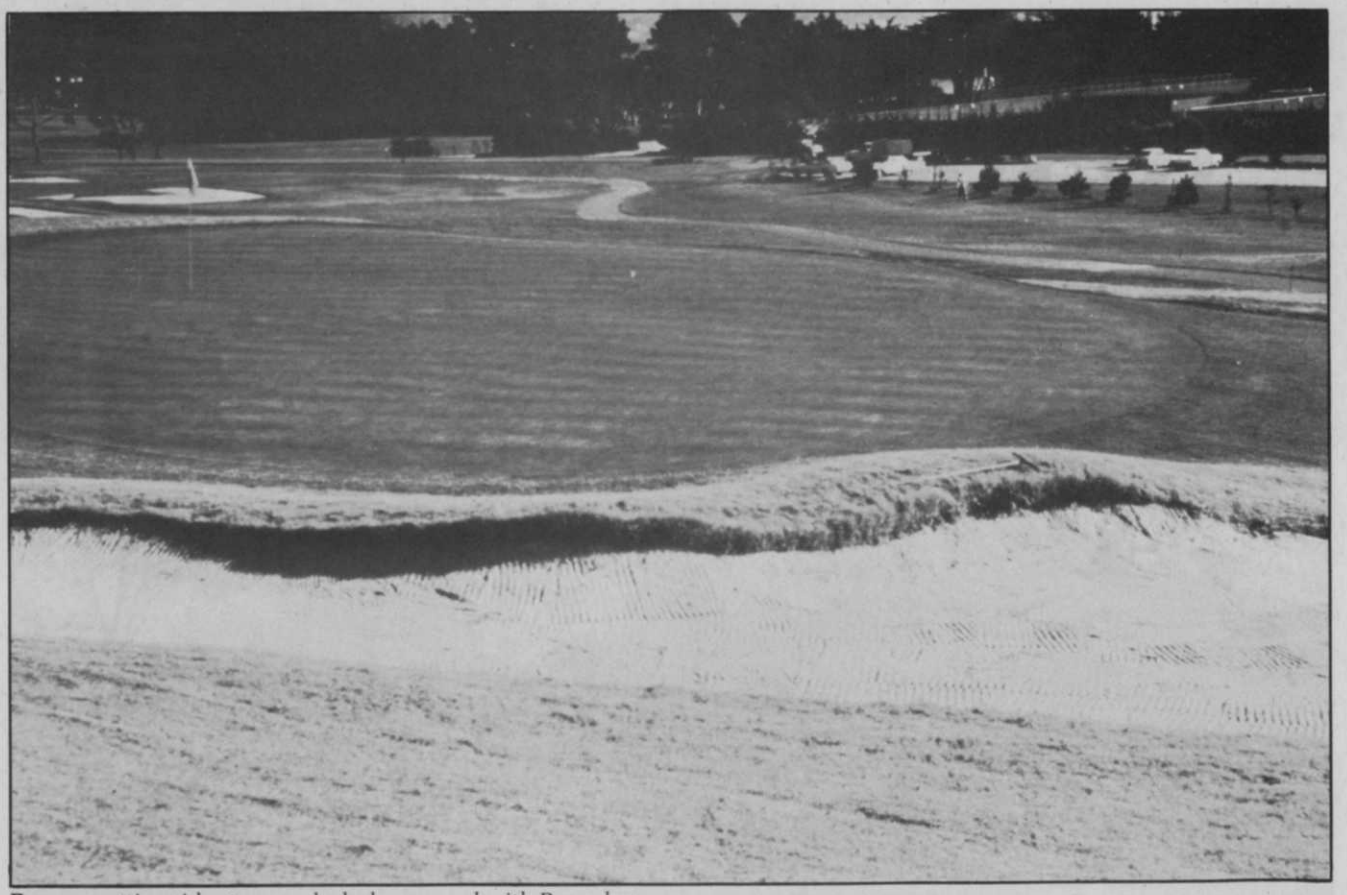

Brown-out *is evident around a hole sprayed with Roundup*

under control and he has been able to upgrade the course for everyday play. All of the sixth and part of the tenth fairway, around the third, eighth and ninth greens and spot areas on several other fairways have been renovated.

Seeking to complete the renovation as quickly as possible, Phillips opted to use Roundup herbicide in the fall of 1979. A non-selective foliar-applied herbicide, Roundup "translocates" through the vascular system of the plant, controlling both above and below ground growth.

"We were able to spray and reseed in just two-and-a-half weeks," said Phillips.

After applying a two-percent solution of Roundup and waiting two weeks for the chemical to circulate down through the Kikuyu grass and existing turf, Phillips raked out the dead grass, applied Tupersan for annual grass and seedling control and reseeded with a ryegrass/bentgrass mix. Because regrowth from seed is an ongoing concern, a second application of Tupersan was made.

Prior to applying Roundup, Phillips, who usually mows the fairways three times a week, let the grass go uncut for a week to increase the amount of emerged vegetation exposed to the herbicide. "This insured the herbicide was translocating through almost all of the existing turf," he said.

Phillips estimates the total cost of the renovation at about $1,000.00.

"That includes labor, seed and herbicide," he said.

> Kikuyu grass spread from local spots to most fairways quickly.

Phillips contends that by using Roundup, he was able to renovate at a lower cost without closing the course.

"Perhaps the main benefit of the renovation is that we are no longer maintaining Kikuyu grass," says Phillips. " Our bentgrass/ryegrass turf looks and plays 100 percent better. The sixth fairway is now the nicest on the course."

To strengthen the turf and create a thick stand, Phillips and his ten-member maintenance crew aerated the rough and fairways at an accelerated rate, about three to four times a year, compared to twice a year in the past. Greens were also aerified five times annually. About two weeks prior to the Open, the irrigation system was shut off to push the turf to stretch its roots in search of water. Last year, Pebble Beach completed the installation of a computerized irrigation system.

Since the U.S. Open is perhaps the nation's most prestigious golf tournament, USGA specialists made periodic checks on the maintenance program at Pebble Beach every two or three months.

"They checked to see what we were doing, see what had been renovated and generally monitored our overall maintenance program," said Phillips. "But we didn't mind. It kept us on our toes, and helped make Pebble Beach an even more beautiful and well-respected course, not to mention the site of the 1982 Open." **WTT**

ADD GOLF CAR PATHS TO YOUR MASTER PLAN

By James Martello, E-Z-Go Division of Textron, Augusta, GA

Cart paths *can greatly enhance yearly revenue picture for most courses*

Being in the golf car business, one of the first questions that comes to mind is . . . Why? Why car paths at all? Most of your southern courses and many Northern courses agree it is purely a matter of maximizing their golf car revenue.

In many wet situations car paths allow a course to remain open and capture a larger volume of play due to the never-ending availability of cars, which can greatly enhance your yearly revenue picture. Other important reasons for paths are to reduce soil compaction in heavily traveled areas and to standardize and direct traffic flow, thus reducing slow play problems.

Hilly courses utilize paths to minimize washout areas and soil erosion. Safety is also a factor to consider, especially in the early morning before the sun has a chance to burn off the dew.

Some of the considerations to take into account when in the planning stage of golf car path development are:

Path width: 6-10 feet with curbing or railroad ties along tee areas; with the norm being 8 feet.

Path depth: 6 inches depending on the material used and the use intended. Is it a *golf car path* or *maintenance road*? The norm has a 4 inch base consisting of stone, gravel, sand, etc., with 2 inches of top paving. Some pregrading should be done to ready this area.

Material: LIMESTOME (traf-

TABLE 1

Cart path construction materials by percent use.

Asphalt	65
Gravel	45
Other:	17
9 mentions: Cement/concrete	
3 mentions: Dirt	
1 mention each: Limestone - Shells - Lava rock - Sand - Woodchips	
Don't have cart paths	12

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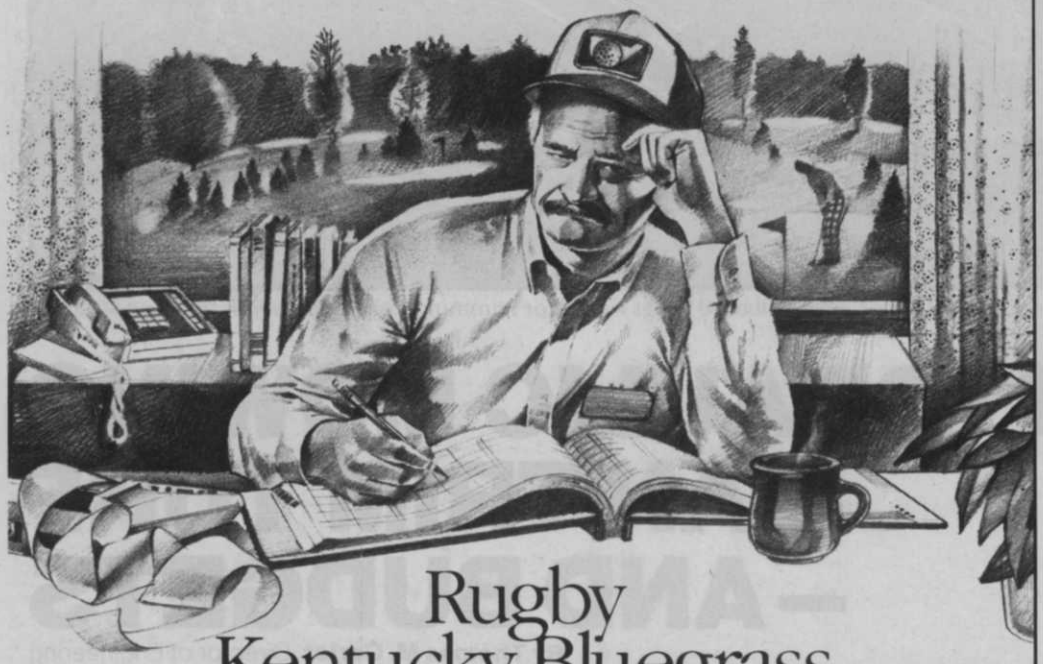

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Growing rich, green turf in today's economy is akin to being between a rock and a hard place.

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In test plots grown in diverse climates from Manitoba to Oklahoma and California to Virginia, Rugby demonstrated superior tolerance to environmental stresses. Its most notable attribute, however, is its ability to thrive on *little or no nitrogen* and *moderate moisture.*

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In overall tests, Rugby scored above 29 other Kentucky bluegrasses in resistance to *Fusarium blight,* and was second highest in resistance to leafspot. It has also shown good ability to avoid the perils of powdery mildew, dollar spot, and stem rust. And if there's anything that can chew your budget to bits, it's the unplanned purchase of fungicide for sick grass.

So the next time you're sitting down with the books, don't get lost in all the worry of red and black ink. Instead, think of the rich, green density of Rugby Kentucky Bluegrass. And how its low-maintenance features can help you out of a tight spot.

For more information, write: Rugby, P.O. Box 923, Minneapolis, Minnesota 55440.

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This new, *compact hydraulic mowing tractor, with outboard gangs raised for trimming, can put a smooth finish on 50 acres of turf in an average shift.*

HYDRAULIC MOWING CAN TRIM TURF —AND BUDGETS

By Thomas M. Carter Director of Engineering
Jacobsen Div. of Textron, Inc.

The broadening use of hydraulics, a strong, long-term trend in turf care equipment development, is making a significant expansion in medium and smaller heavy-duty utility mowers.

The new hydraulic mowing applications that are now here deliver even greater operator convenience and safety, machine productivity and versatility and operating economy for both riding rotary and reel mowers that cut swaths from five to fifteen feet wide.

In addition, hydraulics raise their reliability to new highs, produce better quality cuts, and reduce maintenance by up to 50 percent as I will explain later in this article.

Hydraulics, of course, are not unknown to smaller utility mowers and other turf care equipment. Hydrostatic transmissions are commonly used in our machines, with forward and reverse controlled by a single foot treadle. Hydraulics are also used for raising and lowering cutter decks and reel gangs by actuating another single foot pedal.

By themselves, these applications enhance maneuverability in trimming, moving over obstacles such as curbs and in swift transport. They also take virtually no operator effort, and, by the very simplicity of hydraulics, already have eased maintenance considerably.

To fully appreciate the many benefits of hydraulic mowing, the unique advantages of hydraulic systems over other forms of power transmission should be reviewed.

First, a hydraulic system is relatively simple, consisting of fluid, reservoir, pump, valve lines and motor or cylinder. Fluid from the reservoir, put under pressure by the pump, is controlled by the valve in the line as it moves to the motor or cylinder that raises a cutter deck, rotates reels or rotary

Continued on page 56

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blades or performs other work. Compared to the complexity of mechanical linkage needed to do the same job, a hydraulic system is truly an uncomplicated device.

Another characteristic of a hydraulic system is that it offers more power in a smaller package, reducing equipment weight and increasing economy. And, because power is transmitted by fluid through tubes and hoses that can be easily routed, components can be located more advantageously. Control is better, too. For example, a single lever opens and closes a valve, providing infinite adjustment of the power applied as it is moved.

Downtime is not only reduced by the simplicity of the system itself. Relief valves are built in to protect against overload, making unexpected maintenance due to shock loads almost nonexistent.

Finally, because power is transmitted through a fluid, a hydraulic system is uniquely smoother and quieter in operation compared to mechanical devices. This feature has become increasingly important to equipment users, with or without government noise abatement laws.

While these systems are virtually failure-proof, with the chance of leakage fairly remote, a breach in the system could occur, allowing fluid to escape onto turf.

Should this happen, it is essential to rinse the turf immediately with water or a soapy solution. Warm or cool oil can suffocate grass while hot fluid—say from a transmission—can actually cook it, turning the blades white.

Contrary to some beliefs, the dyes in hydraulic fluids will not damage turf. They are used to color code the fluid, simplifying identification for proper use of specific products as well as to aid in leak detection.

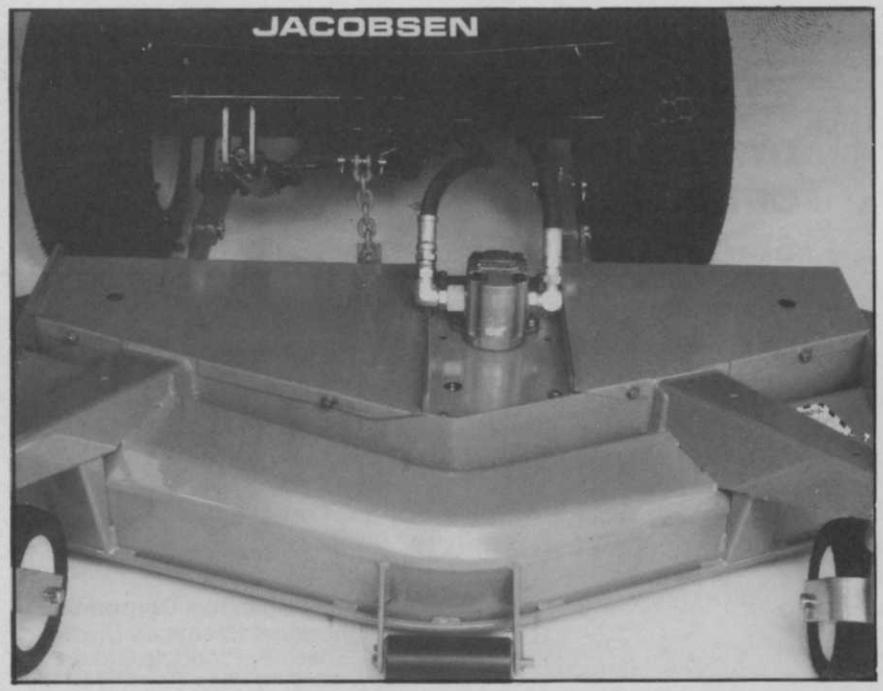
Preventing a leak is a matter of preventative maintenance, that is establishing a procedure of routinely checking tubes, hoses and fittings, and other components for evidence of leakage, wear or looseness. This could be a part of an overall check before the machine moves out onto the turf and when it returns.

This riding mower's *hydraulically driven cutter blades make short work of field grass. A snowthrower, dozer blade or rotary broom can be attached in place of the cutter deck to handle other chores throughout the year.*

Translating these characteristics to hydraulic mowing in medium and smaller heavy-duty turf machines we find they create benefits beyond the inherent advantages we have listed.

A more compact machine results from hydraulically driving the blades—a machine that is easier to handle and more productive and maneuverable. The weight saved over the mechanical system results in less compaction, and, therefore, healthier turf and less need for aeration later on.

This machine takes on new versatility, too. Plug-in hydraulics expand its utility, making it easy to remove the cutter deck and attach



The hydraulic *implement drive simplifies power transmission by eliminating belts, drive shaft, bearings and P.T.O. shaft/gearbox.*

a snow thrower, rotary brush or flail deck.

This system is also totally enclosed and, therefore, protected from the environment which in turf care work can be quite dusty. Another plus is that the flow of hydraulic fluid acts as a built-in cooling system.

Because a mowing unit such as this, with a cutting capacity that can range from five to six feet depending on the deck selected, may be frequently used near buildings, transmitting power to the blades hydraulically significantly reduces noise levels. The importance here goes beyond meeting current and future restrictions. It cuts operator fatigue. The smoother flow of fluid power minimizes vibration, too, another benefit for both man and machine.

Most of the advantages listed for the rotary apply to a hydraulic reel mower as well. But it has others that are uniquely its own.

Designing machines that perform well and economically is a real engineering feat.

By simply moving one lever, cutting frequency can be infinitely adjusted for the type of turf, its height, time of year and other variables. Because reels are not driven by traction, rotation remains at the set frequency despite changes in machine speed or turf conditions such as wetness. And since the reels can be driven faster, actually mowing an area in less time than larger, much heavier equipment. This can mean a reduced capital expenditure and a savings in labor costs.

Hydraulic power is generated by a second hydrostatic unit placed back-to-back with the one for the transmission. Besides driving the reels, it power-assists the steering, making the machine exceptionally easy to maneuver. In fact, because most of the mechanical linkage for steering has been eliminated, a tilt wheel has been added for better human engineering.

On the safety side, reels can be instantly stopped or started, and automatically disengage when gangs are raised.

Hydraulics also lend themselves to improved machine protection through the use of monitoring devices that with warning lights and buzzers signal the need for attention before problems occur.

And adding to the productivity of these new machines are diesel engines that require far less attention than gas power, deliver better operating economy and have longer lives.

Not only will the new wave of hydraulic mowing machines cut more turf better, they promise to give grounds maintenance budgets a proper trimming, too. And, in these days of scarce dollars, designing machines that perform as well in the field as they do on a ledger is a real feat in industry-responsive engineering. **WTT**

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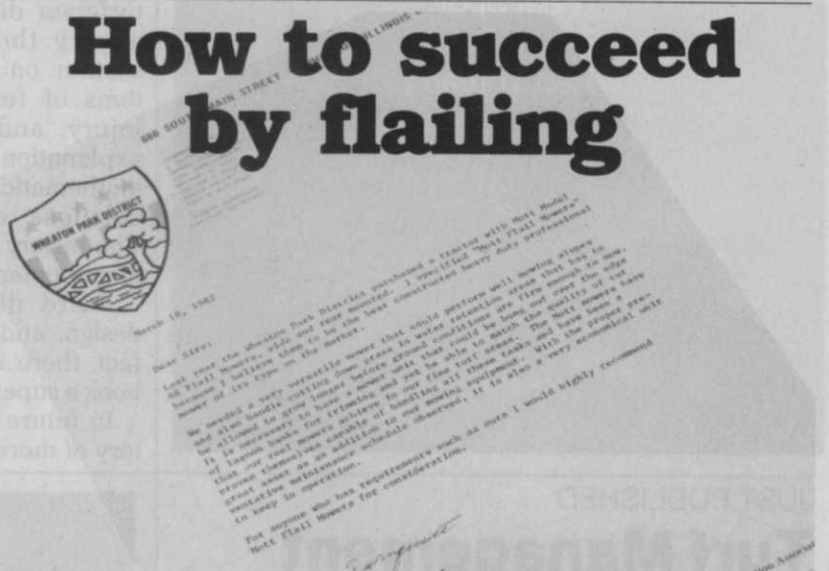

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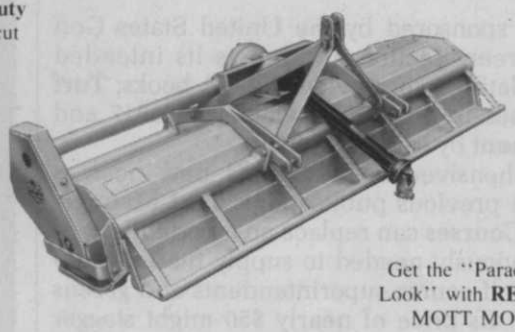

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JUST PUBLISHED

Turf Management For Golf Courses

By James B. Beard

Jim Beard, the turfgrass professor from Texas A&M and Michigan State University, who has given the turf and golf industries a great deal in **Turfgrass Science and Culture,** a lab manual to Science and Culture, and **Turfgrass Bibliography,** has established himself as the leading author in golf course management with the recent publication of **Turf Management for Golf Courses.**

The book is sponsored by the United States Golf Association Green Section and meets its intended purpose of updating two previous USGA books; **Turf for Golf Courses** by Piper and Oakley in 1917 and **Turf Management** by Musser in 1950.

The comprehensiveness of Beard's new book is unsurpassed in previous publications. **Turf Management for Golf Courses** can replace an assorted four or five books previously needed to supply the information needs of golf course superintendents and greens committeemen. Its price of nearly $50 might stagger some people, but there is little question of its value.

This is not just a book by one person, even someone as recognized as Beard. USGA's regional directors were on the editorial board and seven superintendents made up a review board for the project. Clearly, Beard preserved much of the historical and basic material of Piper, Oakley, and Musser. From his work on the **Turfgrass Bibliography** he clearly values and utilizes the work of previous authors.

Turf Management for Golf Courses is more than 600 pages in length and consists of 12 chapters. Highlights include Great Golf Holes, cultural system specifications for each site and turfgrass type, a color section on turfgrass diseases, a very thorough section on symptoms of turfgrass injury, and clear explanation of the mathematical calculations required to perform management duties. The history section gives valuable background on the development of current techniques.

Beard discusses course construction, irrigation design, and even getting ready for tournaments. In fact, there is little if anything missing. By using this book a superintendent could almost insure his job.

In future editions, perhaps, Beard can include history of more contemporary superintendents and what

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40° or above should be considered. This will control aphids, many scales, and mites.

Dormant oil should be applied to the point of runoff. One should use highly refined oils, e.g. 80- 90- or 100 second oils. These highly refined superior plant oils (100 sec.) have little or no phytotoxic effects and can be used on a broad variety of plants. The mode of action of these plant oils is to smother the eggs of these sucking insects, thus only total coverage of the plant will result in control.

Several plants that often have heavy aphid populations include linden, ash, and crabapples. These plants almost warrant some annual control.

There are several plants that are particularly sensitive to dormant oil and, therefore, one should not apply it to these plants, e.g. birch, beech, hickory, or walnut (that is, the thin-barked trees). Further, if one has a 'Moerheimii' or Colorado "blue-type" spruce, dormant oil would eliminate or remove the bloom but will not injure the plant.

Early spring is also a time for **fertilizing.** It has been clearly shown from studies by Heimlich and Neely at the University of Illinois, and my studies at Ohio State, that timing results in the maximum effect of fertilization. That is, the same amount of fertilizer will have a more positive impact on the health and vigor of the tree when applied on or before the 15th of April (commencement of growth), when frost is out of the soil. Fertilizing at other times of the year could be beneficial but will not have as much impact.

When assessing your landscape, you note some decreased rate of growth on some trees, then early spring fertilization is paramount. Further, it is a cost effective task to combine tree fertilization with turf fertilization at this early time. **WTT**

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they have done for the industry. Also, the wide columns and small type make the otherwise well-designed book harder than necessary to read.

If there are 12,900 golf facilities in the U.S., then 12,900 superintendents should buy this book as should each greens committee. This book will carry the standard for golf course management just as its two predecessors did for 20-30 years. It may be too expensive for students, but certainly it is worth spending $46.75 to protect the business and property of a golf course.

Bruce F. Shank, editor

Landscape Log Continued from page 62

the flowering since the flower buds are formed on current season wood. These would include: Butterfly-bush *(Buddleia davidi)*, Summersweet *(Clethra alnifolia)*, Rose of Sharon *(Hibiscus syriacus)*, and European Cranberrybush *(Viburnum opulus)*.

Rejuvenation of shrubs is a particularly important consideration in pruning the plant back to six inches from the soil and allowing the shrub to come up from the suckers. This is another way to have new plants by reworking old shrubs while correcting neglected plants. This spring rejuvenation has saved many landscapes.

The application of dormant oil is one of the most effective, yet environmentally sound practices for control of sucking insects. The outstanding grounds manager or plantsman is constantly reviewing conditions of the landscape. While pruning one has opportunity to assess the plants for disease and insect problems.

If sucking insects are a problem, then the application of a dormant oil any time during March when the temperature is

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VEGETATION MANAGEMENT

By Balakrishna Rao, Ph.D., Plant Pathologist and **Thomas P. Mog, PH.D.,** Pest Management Specialist
The Davey Tree Expert Company, Kent, OH

Q. *I raise Christmas trees, and my biggest problem is transplant survival. Can you recommend something that will cut my losses? (Pennsylvania)*
A. Transplanted seedlings frequently die during the first year because of poor water relations. Roots may dry-out before the stock is planted. Insufficient rainfall and/or poor root development after planting also result in transplant mortality. Watering helps transplanted ornamentals become established but may not be practical or economical on a large scale basis such as a tree farm.

Survival would be greater if we could insure an adequate water supply during the first season. Perhaps science has come to the rescue in this regard. Miller Chemical and Fertilizer Corporation is marketing a new product under the trade name LIQUA-GEL, which is chemically related to the starch graft polymers invented by the USDA. When added to water, the material forms a thin slurry. LIQUA-GEL should absorb 800-1000 times its weight in water. The gel-like slurry clings tenaciously to roots.

The performance of slurry-dipped Christmas tree planting stock was evaluated in Michigan, Pennsylvania and Wisconsin. The reports were encouraging. Ohio State University reports that transplant survival was dramatically increased and early growth was improved.

Apparently, the gel-like coating protects the roots from dehydration while out of the ground and provides water to the transplant for nearly a year. Water absorbed and stored by the material is released to the plant as needed. Water given to the plant is replaced as the material absorbs moisture from the surrounding soil. We have not tested LIQUA-GEL, but if it performs as well as information indicates, it would solve a common problem in the tree-growing industry.

Q. *A client has inquired about an adverse effect of cultivating around shrubs. I have been in landscape and maintenance business many years and feel that this practice to control weeds and feed the plants is not harmful.*
A. I believe there is a misconception concerning keeping shrubbery borders of foundation plantings weed-free by cultivation. For best results, use an organic mulch to keep the area weed-free and to provide other mulching benefits, such as moisture retention. With the use of mulch, cultivation around plantings is generally not necessary, is of no advantage, and may result in root injury.

Surface roots of many ornamental plants can be severely injured, even by careful cultivation practice. Most active roots are located near the surface within the dripline of the plants. It is not even necessary to cultivate once or twice a year to incorporate dry fertilizer, since the material can be penetrated by watering or rain.

Q. *Can you recommend a chemical which could be used effectively against road salt injury to home lawns? Some of our lawn care clients are interested in such a treatment. (Minnesota)*
A. Chemical control of road salt accumulation in a lawn is very difficult. Gypsum is a possibility but often not practical because it takes up to 200 lbs. per 1000 square feet of lawn. Gypsum replaces harmful sodium with calcium and improves soil structure. For best results gypsum treatment should be done very soon after the salt application. Best solution is heavy watering and leaching the salt. Often Mother Nature can help in this situation with good rains; if not, do consider heavy watering.

Q. *Dogwoods are a favorite flowering tree of many species and colors. The main problem has been borers. Why do the same trees get borers year after year while others are never bothered? (Virginia)*
A. The dogwood borer was discussed at the recent International Society of Arboriculture Meeting.

Exposure, wounds, crown dieback, blossom color and tree size were studied. Reports indicate that dogwoods in full sun are three times more likely to be attacked by borers than trees in full shade; wounded trees are twice as susceptible to borers as trees without wounds; trees with crown dieback are more susceptible to borers than healthy trees; and dogwoods with pink flowers were more heavily infested. No clear-cut relationship was found between tree size and degree of borer attack; however, young trees were most often infested near the ground.

Cultural practices which reduce borer problems are: avoid pruning just prior to and during adult flight, remove badly infested trees, maintain tree vigor with water and fertilizer, wrap trunks of newly planted trees and brace.

Q. *We have used Trimec in our lawn care programs for a number of years. In recent years, many organic-minded persons are concerned about the 2,4-D contamination and its effect on human and other environment. Please update us on present status of the issue. (New Jersey)*
A. Your question is a hot and timely issue because of widespread, adverse publicity. Reports from a leading toxicologist at a recent international meeting indicate that exhaustive studies show that 2,4-D does not remain in the body, even at very high doses, does not accumulate in body fat or tissue and is excreted from the body in the urine. Studies have shown that the maximum amount of 2,4-D absorbed by applicators using backpack sprayers is about 1/1000 of the 'no-observable-effect' level, or the point where some effect might be expected, although this kind of equipment causes the highest occupational exposure.

No scientific evidence exists to support charges that regular use of herbicides causes birth defects. Epidemiological studies of human populations have failed to show any impact of herbicides on human health.

Much of the present fear of pesticides, including weed killers like 2,4-D, is attributed to the lack of exposure of the public to the true facts.

Send questions or comments to: Vegetation Management c/o *WEEDS TREES & TURF*, 7500 Old Oak Blvd., Middleburg Heights, OH 44130. Allow at least two months for Roger Funk's response in this column.

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LANDSCAPE LOG

By Douglas Chapman, horticulturist, Dow Gardens, Midland, Michigan

Photo courtesy of the National Arborist Association.

During the next twelve months, this column is going to concentrate on timely maintenance practices as they relate to overall landscape maintenance and tree species. Although it will highlight one month prior, e.g. March activities in the February issue of WEEDS, TREES, AND TURF, it should be stressed that as one goes 100 miles south of central Michigan, the practices would move up five to seven days, and north, the converse.

Physiologically, there are two times to **prune deciduous trees.** The best time is from March through the commencement of growth. The second time is when we have active lateral meristem activity, or during August.

During these two periods the cambium, or lateral meristem, is more active and, therefore, the wound response (compartmentalization, or isolating the injury,) and the process of closure (callusing over) would be optimal.

Conversely, when the tree is in a rapid growth period (during early spring when terminal elongation is accomplished) would be least desirable to prune, and, therefore, the wound response would be poorest.

Most deciduous trees can be pruned but some trees are active bleeders. These so-called bleeders include Sugar Maple *(Acer saccharum)*, Red Maple *(A. rubrum)*, American Elm *(Ulmus americana)*, and birch *(Betula* sp.). These should be pruned during August.

Size of the pruning cut also has a significant impact on the wound or the amount of time it takes to close over. Why, in English gardens, do we see trees one hundred to two hundred years of age but expect urban trees in this country to last only thirty-five to fifty-five years? Not only are the English concerned about the correct time of pruning, but they prune the trees actively every year or two. This, of course, means the wounds are smaller and have a decreased deleterious effect on the trees.

In this country, we often dream of five and six year pruning cycles but, in waiting this long, more damage can be done than corrective pruning.

All trees, when young, should be pruned annually for the first three years after transplanting. This develops a good structure and sets the pattern for its mature habit. At this point, we can be making smaller cuts, eliminating V-crotches, pruning of suckers, and removing rubbing or deformed branches.

Some trees require little pruning after this point. These trees include Scarlet Oak *(Quercus rubra)*, White Oak *(Q. alba)*, Maidenhair Tree *(Ginkgo biloba)*, several low maintenance crabs, e.g. 'Snowdrift' *(Malus* 'Snowdrift') and floribunda *(M. floribunda)*, Norway Maple *(A. platanoides)*, Sugar Maple *(A. saccharum)*, and Black Gum *(Nyssa sylvatica)*. Other trees, and these would include many other crab apple cultivars *(Malus)*, Silver Maple *(Acer saccharinum)*, Red Maple *(A. rubrum)*, American Beech *(Fagus grandifolia)*, European Beech *(F. sylvatica)*, birch *(Betula* sp.), ash *(Fraxinus* sp.), and linden *(Tilia* sp.), require frequent pruning, and, if frequent but small cuts can be made, then heartwood rot or structural damage is not a major problem.

March is optimal time for **pruning of many shrubs.** Corrective pruning, annual thinning or containment, and renewal of shrubs that have become overgrown is best in March.

Generally speaking, many of our early spring flowering shrubs should be pruned annually. This pruning, depending on height desired, would range from 10 - 25%. More pruning would be appropriate when decreased height is desired. Annual pruning to renew the shrub should be at ground level and allow it to sucker. Shrubs pruned in this manner allow the plants to display their natural habit without turning them into a square, triangle, or sphere.

If flowers are important to you, then many flowering shrubs should be pruned just after flowering. If, due to the pressures of other tasks, this pruning can't be accomplished just after flowering, then any time during March and April is acceptable. A brief list of shrubs to be pruned in the spring includes Red Twig Dogwood *(Cornus sericea)*, Deutzia *(Deutzia)*, cinquefoil *(Potentilla fruticosa)* Yellow Twig Dogwood *(C.* s. 'Flaviramea'), forsythia *(Forsythia intermedia)*, St. Johnswort *(Hypericum prolificum)*, Mock-orange *(Philadelphus)*, Flowering Almond *(Prunus triloba)*, spirea (Spiraea), lilac *(Syringa vulgaris)*, and weigela *(Weigela florida)*. There are deciduous shrubs which can be pruned in very early spring without affecting

Continued on page 59

TABLE 1

March*

1. Prune deciduous trees, especially corrective pruning for those planted within the past three years.
2. Prune shrubs, for containment, thinning, correction and renewal.
3. Dormant oil spraying, for sucking insects when temperature is above 40 degrees.
4. Fertilizing trees and turf.

*Based on central Michigan, subtract or add 6 days for each 100 miles south or north, respectively.

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EVENTS

The current issue of WEEDS TREES & TURF carries meeting dates beginning with the following month. To insure that your event is included, please forward it, 90 days in advance, to: WEEDS TREES & TURF Events, 7500 Old Oak Boulevard, Cleveland, OH 44130.

Annual Meeting of the Fertilizer Institute, Atlanta Hyatt Regency, Atlanta, GA. **Feb. 13-15.** Contact the Fertilizer Institute, 1015 18th St. N.W., Washington, D.C. 20036.

Capital Area Turf and Ornamental School, Holiday Inn, Grantville Exit, I-81, Grantville, PA. **Feb. 15-16.** Contact Harold E. Stewart, Dauphin County Extension Service, 75 S. Houck St., Suite 101, Harrisburg, PA 17109. (717) 652-8460.

American Sod Producers Association Mid-Winter Conference, San Antonio, TX. **Feb. 16-18.** Contact Bob Garey, Executive Director, ASPA, 9th and Minnesota, Hastings, NE 68901. (402) 473-4683.

Sixth Annual Landscape Industry Conference and Trade Show, Sheraton Inn Lakewood, Denver, CO. Feb. 18-19. Contact Associated Landscape Contractors of Colorado, 3895 Upham St., Suite 150, Wheat Ridge, CO 80033, (303) 425-4862.

Lawn Car Applicators Clinic, Morton Grove, IL. **Feb. 22-23.** Contact Tom Fermanian, 106-D Horticulture Field Lab, Urbana, IL 61801, (217) 333-7847.

Northeastern Pennsylvania Turf and Grounds Maintenance School, Luzerne County Community College Conference Center, Nanticoke, PA. **Feb. 22-23.** Contact E.V. Chadwick, Luzerne County Extension Service, Court House Annex, 5 Water St., Wilkes-Barre, PA 18702, (717) 825-1701.

Golf Course Superintendents Association of America International Turfgrass Show, Atlanta, GA. **Feb. 22-24.** Contact Kay Nelson, GCSAA, 1617 St. Andrews Dr., Lawrence, KS (913) 841-2240.

Ohio State University Landscape Design Short Course III, Fisher Auditorium, Wooster, OH. **Feb. 23-25.** Design Detailing. (Short Course II is prerequisite). Contact Fred K. Buscher, Area Extension Center, OARDC, Wooster, OH 44691, (216) 262-8176.

Midwest Turf Conference, Purdue University. **Feb. 28-March 2.** Contact Dr. Bill Daniel, Dept. of Agronomy, Purdue University, West Lafayette, IN, 47907. (317) 494-4785.

52nd Massachusetts Turfgrass Conference and 8th Industrial Show, Civic Center, Springfield, MA. **March 1-3.** Contact Dr. Joseph Troll, University of Massachusetts, Stockbridge Hall, Amherst, MA (413) 545-2353.

Horticulture Industries Conference, Earle Brown Continuing Education Center, University of Minnesota (St. Paul Campus), St. Paul, MN. **March 2-4.** Contact Office of Special Programs, University of Minnesota, St. Paul, MN 55108, (612) 373-0725.

Associated Landscape Contractors of Massachusetts Exposition 1983, Glen Ellen Country Club, Millis, MA. March 9-10. Contact ALCM, 1357 Washington St., #7, West Newton, MA 02165 (617) 964-0452.

34th Annual Canadian Turfgrass Show, the Edmonton Inn, Edmonton, Alberta, Canada. March 13-16. Contact Dean Morrison, Alberta Director CGSA, Willow Park Golf and Country Club, 639 Willow Park Dr. SE, Calgary, Alberta, T2J 0L6.

Club Managers Association of America Annual Conference, Caesar's Palace, Las Vegas, NV. **March 13-15.** Contact CMAA, 7615 Winterberry Place, Bethesda, MD 20817. (301) 229-3600.

Tree Wardens, Arborist, & Utilities Seminar, Quality Inn and Conference Center, Chicopee, MA. March 15-17. Contact Louis J. Casasanto, 81 Oak St., Clinton, MA 01510.

Maine Turf Conference, South Portland Merry Manor, Portland, ME. **March 16-17.** Contact Dr. Vaughn Holyoke, Deering Hall, University of Maine, Orono, ME 04469. (207) 581-2111.

Reinders Brothers, Inc. Sixth Turf Conference Equipment Show and Service Clinic, Waukesha County Exposition Center, Waukesha, WI. **March 16-17.** Contact Ed Devinger, Manager, Turf Division, Reinders Brothers, Inc., 13400 Watertown Plank Rd., Elm Grove, WI 53122.

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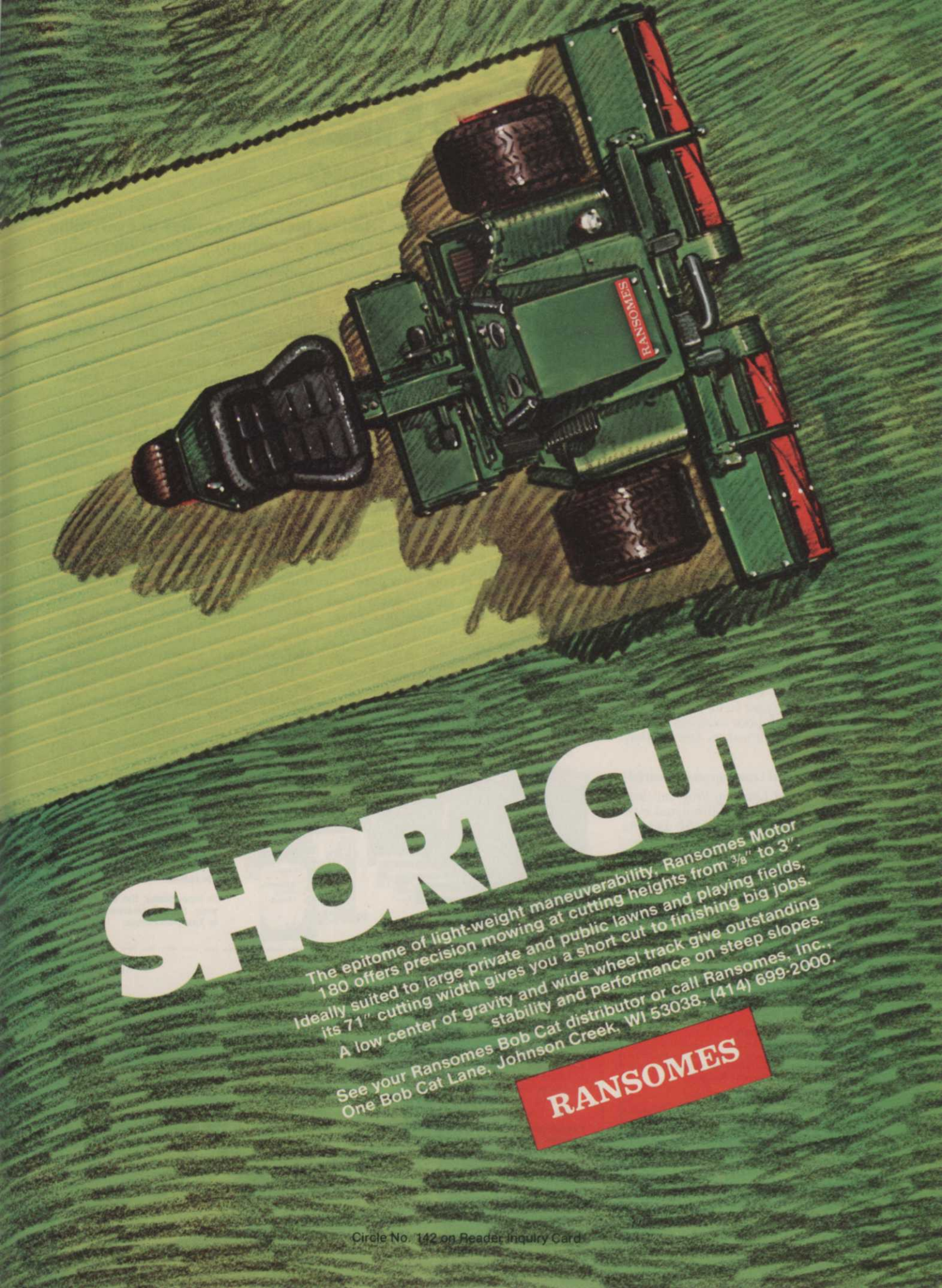

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The new *Speed Learning Program* does not offer you a rehash of the usual eye-exercises, timing devices, costly gadgets you've probably heard about in connection with speed reading courses or even tried and found ineffective.

In just a few spare minutes a day of easy reading and exciting listening, you discover an entirely new way to read and think — a radical departure from anything you have ever seen or heard about. Research shows that reading is 95% *thinking* and only 5% eye movement. Yet most of today's speed reading programs spend their time teaching you rapid eye movement (5% of the problem) and ignore the most important part (95%) *thinking*. In brief, *Speed Learning* gives you what speed reading *can't*.

Imagine the new freedom you'll have when you learn how to dash through all types of reading material *at least* twice as fast as you do now, and with greater comprehension. Think of being able to get on top of the avalanche of newspapers, magazines and correspondence you have to read . . . finishing a stimulating book and retaining facts and details more clearly and with greater accuracy than ever before.

Listen-and-learn at your own pace

This is a practical, easy-to-learn program that will work for you — no matter how slow a reader you think you are now. The *Speed Learning Program* is scientifically planned to get you started quickly . . . to help you in spare minutes a day. It brings you a "teacher-on-cassettes" who guides you, instructs, encourages you, explaining material as you read. Interesting items taken from *Time* Magazine, *Business Week*, *Wall Street Journal*, *Family Circle*, *N.Y. Times* and many others, make the program stimulating, easy and fun . . . and so much more effective.

Executives, students, professional people, men and women in all walks of life from 15 to 70 have benefited from this program. Speed Learning is a fully accredited course . . . costing only 1/5 the price of less effective speed reading classroom courses. Now you can examine the same, easy, practical and proven methods at home . . . in spare time . . . without risking a penny.

Examine Speed Learning FREE for 15 days

You will be thrilled at how quickly this program will begin to develop new thinking and reading skills. After listening to just one cassette and reading the preface you will quickly see how you can achieve increases in both the speed at which you read and in the amount you understand and remember.

You must be delighted with what you see or you pay nothing. Examine this remarkable program for 15 days. If, at the end of that time you are not convinced that you would like to master Speed Learning, simply return the program and owe nothing. See the coupon for low price and convenient credit terms.

Note: Many companies and government agencies have tuition assistance plans for employees providing full or partial payment for college credit programs.

In most cases, the entire cost of your Speed Learning Program is Tax Deductible.

COLLEGE CREDITS

You may obtain *2 full semester hour credits* for course completion, wherever you reside. Credits offered through Whittier College (California). Details included in your program.

CONTINUING EDUCATION UNITS

National Management Association, the world's largest association of professional managers, awards 3.0 CEU's for course completion. CEU's can be applied toward the certificate in Management Studies.

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Speed Learning is offered internationally to members of professional associations such as: American Chemical Society, Foundation for Accounting Education, Institute of Electrical and Electronics Engineers and dozens more. Consult your Education Director for information.

BUSINESS, INDUSTRY, GOVERNMENT

Many companies and government agencies offer Speed Learning as a wholly-paid or tuition reimbursement program. Consult your Training or Personnel Director for details.

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HBJ1-WTT-2/83

YES! Please rush me the materials checked below:

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- ☐ Please send the Junior Speed Learning program (ages 11 to 16) @ $89.95 plus $4 postage and handling.

NJ residents add 5% sales tax.

Check method of payment below:

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- ☐ Charge my credit card under the regular payment terms
  - ☐ Visa ☐ Master Card Interbank No._____ ☐ American Express
  - Card No._____ Exp. Date_____

I understand that if after 15 days I am not delighted in every way, that I may return the materials in their original condition for a full refund. No questions asked.

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WT&T PRODUCTS

Wheel Horse introduces new tractor, mower mount

Wheel Horse Products, Inc. has introduced the C-195 tractor and front mount mower carrier. Tractor features 19 hp twin cylinder Kohler engine, hy-

drostatic transmission and unidrive all gear transaxel. Various attachments are available. Carrier is designed to fit most C-series tractors and is said to maximize precision trimming and mowing of hard-to-get areas.

Circle No. 170 on Reader Inquiry Card

Snow throwers available for Hustlers

Two models of heavy-duty snow throwers for Excel Hustler turf Industries are PTO driven and hydraulically controlled. Rotary broom attachments for lightweight snow removal are available.

Circle No. 171 on Reader Inquiry Card

Air valve system available from Delavan

Delavan has available an air boom control valve system for custom applicators using high-volume, ground flotation sprayers. The system controls

nozzle drip and is adaptable to flotation sprayers equipped with air brake systems. Kits for the system come with one, 11, 12 or 13 valves, control box, air regulator, three-way valve, check valve and nylon tubing. Add-on kits also available.

Circle No. 172 on Reader Inquiry Card

Townsend granted patent for chain saw design

Townsend Saw Chain Co. has been granted a U.S. patent for the Tri-Raker saw chain design that is said to be more effective in reducing kickback. The triple raker chain increases the facial area on the raker so it doesn't become buried in the wood.

Circle No. 173 on Reader Inquiry Card

Growing line of turf and ornamantal products

BFC Chemicals, Inc. has added to its line of turf and ornamental products with Turcam insecticide for surface and sub-surface control of insects in turf and ornamentals, and with Pro-

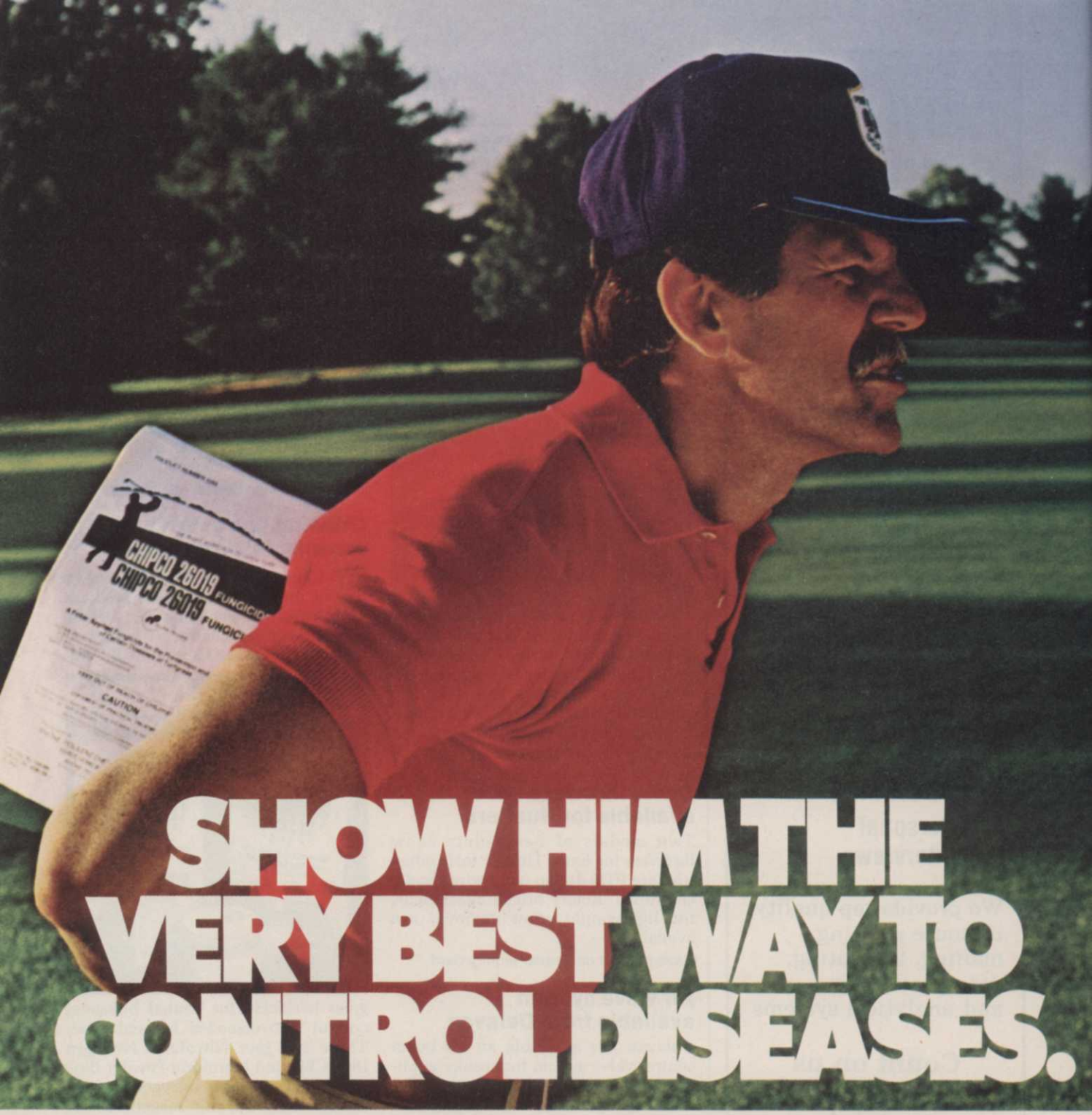
grass herbicide for annual bluegrass control in overseeded bermudagrass. These two join Nitroform Nitrogen Blue Chip and Nitroform Powder Blue controlled release nitrogen source fertilizers, and Deltic insecticide for outdoor control of fleas, ticks and mites.

Circle No. 174 on Reader Inquiry Card

Eliminates clogging and skating movements

The Green Machine weeder/cultivator from HMC employs a counterbalanced, dual-blade cutting action, reciprocating 1800 times per minute to assure the unit moves only in the intended direction. The spring steel blades are self-cleaning and replaceable. Weighing 9.5 lb, the unit is 51 in. long, 7½ in. wide, and features a 4¾

Continued on page 72



SHOW HIM THE VERY BEST WAY TO CONTROL DISEASES.

What's it going to be?

The most effective disease control?

Or the most economical disease control?

With CHIPCO® 26019 turf fungicide, you get both.

CHIPCO® 26019 IS STRONG MEDICINE.

The most demanding turf managers rely on CHIPCO 26019. Because no other product is so effective against such a broad spectrum of diseases.

It protects turf against Helminthosporium Leaf Spot and Melting Out. Dollar Spot. Brown Patch. Fusarium Patch and Fusarium Blight. Pink Snow Mold. And Grey Snow Mold.

CHIPCO® 26019 LASTS LONGER...SO IT COSTS LESS TO USE.

If you think you can save money with a lower priced fungicide, think again.

The disease control you get with CHIPCO 26019 lasts much longer...21 days on greens and tees

SHOW HIM THE VERY BEST WAY TO CONTROL COSTS.

and up to a full 28 days on fairways.

It lets you cut your spray schedule back.

And for every treatment you eliminate, you save up to $10 per acre in fuel and labor alone.

In short, CHIPCO 26019 is not just effective. It's cost-effective.

THE BEST DISEASE CONTROL FOR GREENS, TEES AND FAIRWAYS.

On your fine turf, where quality is everything, and on your fairways, where cost really comes into play, don't compromise. Cover the course with CHIPCO 26019, the cornerstone of your spray program.

Ask for it and other fine products in the CHIPCO Turf Care Line at your local dealer.

Rhône-Poulenc Inc., Agrochemical Division, Monmouth Junction, NJ 08852.

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CHIPCO® 26019
EVERYTHING'S UNDER CONTROL.

Please read the label and use only as directed.

Circle No. 143 on Reader Inquiry Card

in. cutting depth. All internal parts are metal, and the motor is a ⅓ hp double-insulated with 115 Vac 60 Hz operation.

Circle No. 175 on Reader Inquiry Card

Aerates level or rolling areas

Two large-area aerators from Ryan Equipment Co. can aerate six-foot swaths at speeds up to ten mph. The Renovaire is designed for rolling or undulating turf areas and carries six

pairs of independently mounted tine wheels. Coring, slicing and open spoon tines are available. The Tracaire has 12 tine wheels fixed in a horizontal position for use on level turf areas. An optional 12 foot dragmat is possible for both models.

Circle No. 176 on Reader Inquiry Card

Weather-matic

Reliability is the hallmark of Weather-matic lawn and turf irrigation systems. Every valve is pressure-tested before it leaves our factory. Every sprinkler head is designed for years of trouble-free operation. Every controller is durable, dependable and accurate. They're all designed to work together, so you can install a Weather-matic system — and forget about costly callbacks and repairs for years to come.

An integrated Weather-matic system is your sensible investment in landscape maintenance. Write for the name of the Weather-matic distributor in your area.

You can't beat the Weather-matic system, because it *works*.

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Circle No. 157 on Reader Inquiry Card

Velsicol, SUNY research termiticide products

Velsicol Chemical Corp. and the Research Foundation of the State University of New York have announced their licensing agreement to research, develop and commercialize new termiticide products. Research will involve a type of delayed action fluorinated insecticide which is said to be insect-specific and environmentally safe.

Circle No. 177 on Reader Inquiry Card

Bowie introduces compact aero-mulcher

Bowie Industries has added the Bowie Aero-Mulcher to its line of hydromulchers. The unit is capable of blowing all grades of baled hay and wet or

dry straw. Features include turbocharged John Deere series 300 engine, hydraulically driven variable speed chain conveyor and adjustable feed tray.

Circle No. 178 on Reader Inquiry Card

DUSBLOC is aid in dust control

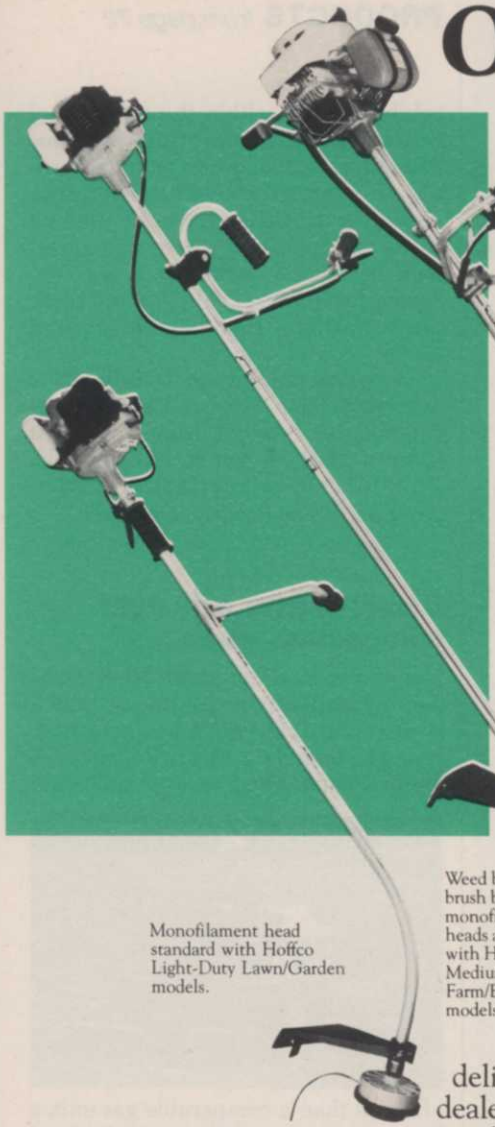
ARCO Performance Chemicals Company, Inc., a subsidiary of Atlantic Richfield Company, has introduced a new chemical stabilizer for in-depth wind loss dust control and better weather resistance.

DUSBLOC 500 stabilizer works by forming a transparent, resilient, water-

Continued on page 74

Only Hoffco cuts it all.

Some trimmer/cutter brands do brush, or brush and weeds. Then quit. Others do weeds and grass, or just grass. That's it. Only Hoffco handles *all* your groundskeeping work *all* the time.



Brush blade, weed blade, monofilament head available with Hoffco Heavy-Duty Professional/ Commercial models.

Weed blades, brush blades, monofilament heads available with Hoffco Medium-Duty Farm/Estate models.

Monofilament head standard with Hoffco Light-Duty Lawn/Garden models.

Buy the one brand that does everything.

Choose from 13 different models, top to bottom. Our heavy-duty brush clearers take down a sapling quicker than you can say "Hoffco." Our medium-duty weed trimmer/cutters switch from blades for the tough stuff to monofilament for the easy going. Even our light-duty grass trimmers share heavy-duty Hoffco features like our patented drive shaft systems. All models with blade capability include Hoffco's Guardian Triangle, the three-point suspension system that promotes operator comfort, efficiency—and security.

We don't come apart when you need parts.

Hoffco boasts the best parts delivery in the business. We back our dealers with a parts and service program so complete and so effective, it's unlike any other in the industry. We don't let the grass grow under your feet when you need something. That's another reason to choose Hoffco trimmer/cutters.

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Circle No. 120 on Reader Inquiry Card

What's the Economical Solution to Maintaining Big Acreage?

HUSTLER: #1 SOLUTION

The new HUSTLER 14' Range Wing™. It cuts 115% more turf each pass than 72" mowers...and you won't believe the low price.

The front-mounted HUSTLER Range Wing is a 14' fine cut rotary gang mower designed for use on our 32 hp diesel HUSTLER 305 D.

And it's the only rotary gang tractor on the market with twin-lever, drive wheel steering so you not only get economy and value — you get one-hand control and "trim-efficient maneuverability."

With the Range Wing you can cut up to a whopping 61.8 acres of turf per day.

The HUSTLER Range Wing mower consists of three decks. Each deck can be hydraulically raised and lowered separately for trim capabilities. The decks float independently to follow ground contour for a smooth, uniform cut.

The PTO-driven, Dual-Trim main deck is a heavy-duty 72" rear discharge deck with an 11" offset trim capability on both sides. Twin side wing decks are each 48" wide with rear discharge. Wing decks are belt-driven off of the main deck for power efficiency.

A 10' single Range Wing attachment is also available for our HUSTLER model 295.

Call toll free 1-800-835-3260 or write for free literature: EXCEL INDUSTRIES, INC., P.O. Box 7000, Hesston, KS 67062

EXI-3-183

An automatic clutch on each wing disengages blades when wing is raised.

Every HUSTLER features infinite maneuverability and one-hand control for maximum operating efficiency!

The choice of the Pros.

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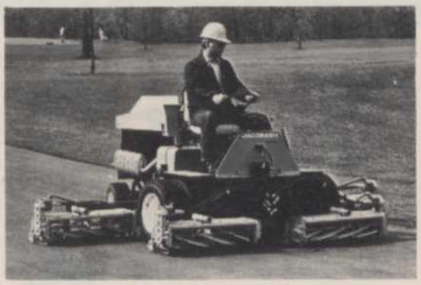
soluble matrix within the top inch of treated surfaces, improving resistance to wind, rain, foot traffic and mechanical shifting of treated stock piles, according to ARCO. It can be used on roads and footpaths where a "natural" look is desired, although it was designed for treating coal piles, ore piles, mine tailings, road shoulders and fields.

More information on DUSBLOC is available from ARCO Performance Chemicals, Product Manager, Dust Control, 1500 Market St. Philadelphia, PA 19101 or by calling (215) 557-2208.

Circle No. 179 on Reader Inquiry Card

Diesel mower with light compaction touch

Jacobsen's medium-sized HF-5 compact hydraulic mowing tractor cuts a swath up to 11 ft. with a five gang reel. Features include a 33 hp Volkswagen diesel engine which is 30% more fuel



efficient than a comparable gas unit, a hydrostatic transmission with forward and reverse controlled by a single foot treadle, and hydraulics for power steering and raising and lowering reels. Compaction is just 8 lb. psi with one operator aboard.

Circle No. 180 on Reader Inquiry Card

Bluegrass meant for transition zone

Lofts Seed, Inc.'s Georgetown bluegrass has resistance against Fusarium roseum and is suited for the transition zone of Washington D.C., Virginia, Maryland, and west to St. Louis and Kansas City. It persists where other bluegrass varieties show signs of thinning due to heat and drought stress, and is compatible with Ram I and Baron Kentucky bluegrasses.

Circle No. 181 on Reader Inquiry Card

Cart sprayer/washer introduced by Solo

Solo's model 117 is a self-contained portable high pressure cart sprayer/washer. The lightweight, compact unit is powered by a 1½ hp gas engine and

←Circle No. 118 on Reader Inquiry Card

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DIVISION OF GILSON BROTHERS COMPANY
MADE IN U.S.A.

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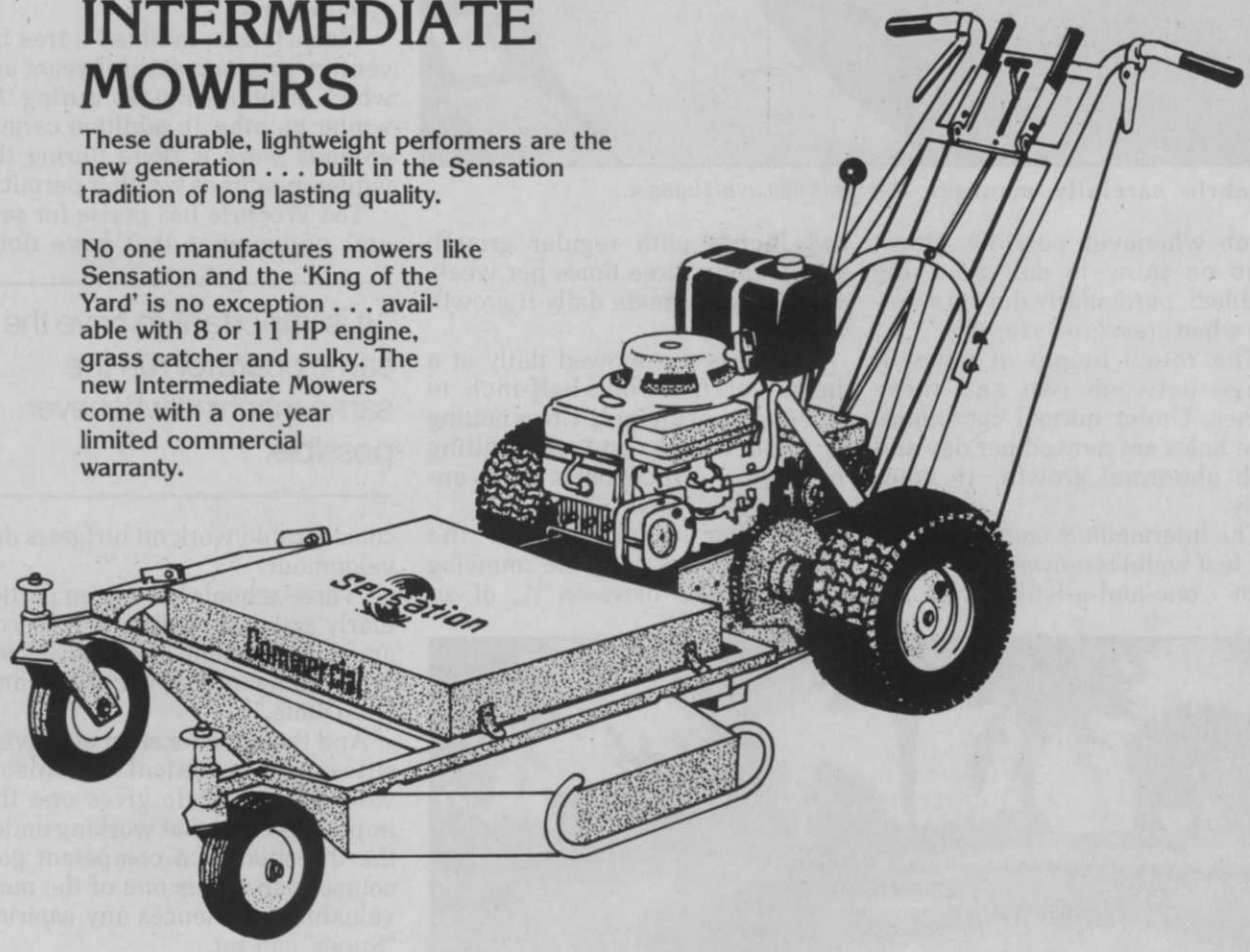

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For more information on this or any of Sensation's full line of commercial mowers, call or write:

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Circle No. 147 on Reader Inquiry Card

Woehrle carefully manages *the $400,000 in his budget.*

chine whenever possible. Down time on mowers can be a big problem, particularly during a season when grass grows rapidly."

The rough height of cut will range between two and three inches. Under normal conditions, nine holes are mowed per day and with abnormal growth, 18 holes daily.

The intermediate courtesy rough (six feet wide) is mowed at a height from one-and-a-half-inches to two-inches with regular growth and is done three times per week. Mowings are made daily if growth is rapid.

Fairways are mowed daily at a height of from one-half-inch to five-eights of an inch. Cross cutting is done weekly and verticutting monthly. Aerification is done annually on fairways.

Weather often dictates the greens cutting but the mowing height ranges between $\frac{5}{32}$ of an inch to $\frac{3}{16}$. Regular mowing is done daily, verticutting two times a month, double cutting as required, sanding (light dusting) every three weeks and aerification annually.

Tees are mowed to a height of one-half inch three times per week.

Traps are edged and contoured semi-annually and are dug up and respread annually.

All machinery is inspected and repairs made as needed during winter months. This includes inspection and repair work on the 20 gas-powered golf carts and the 80 electric carts.

Woehrle also initiated a tree inventory program several years ago which is done annually during the winter months. In addition certain grounds work is done during the winter months as weather permits.

Ted Woehrle has praise for several universities that have done considerable work on turfgrass development.

"Three schools have been particularly active in turf grass research and management," he said. "They are Michigan State, Purdue and Ohio State."

> "It is important to have the same operator run the same machine whenever possible."

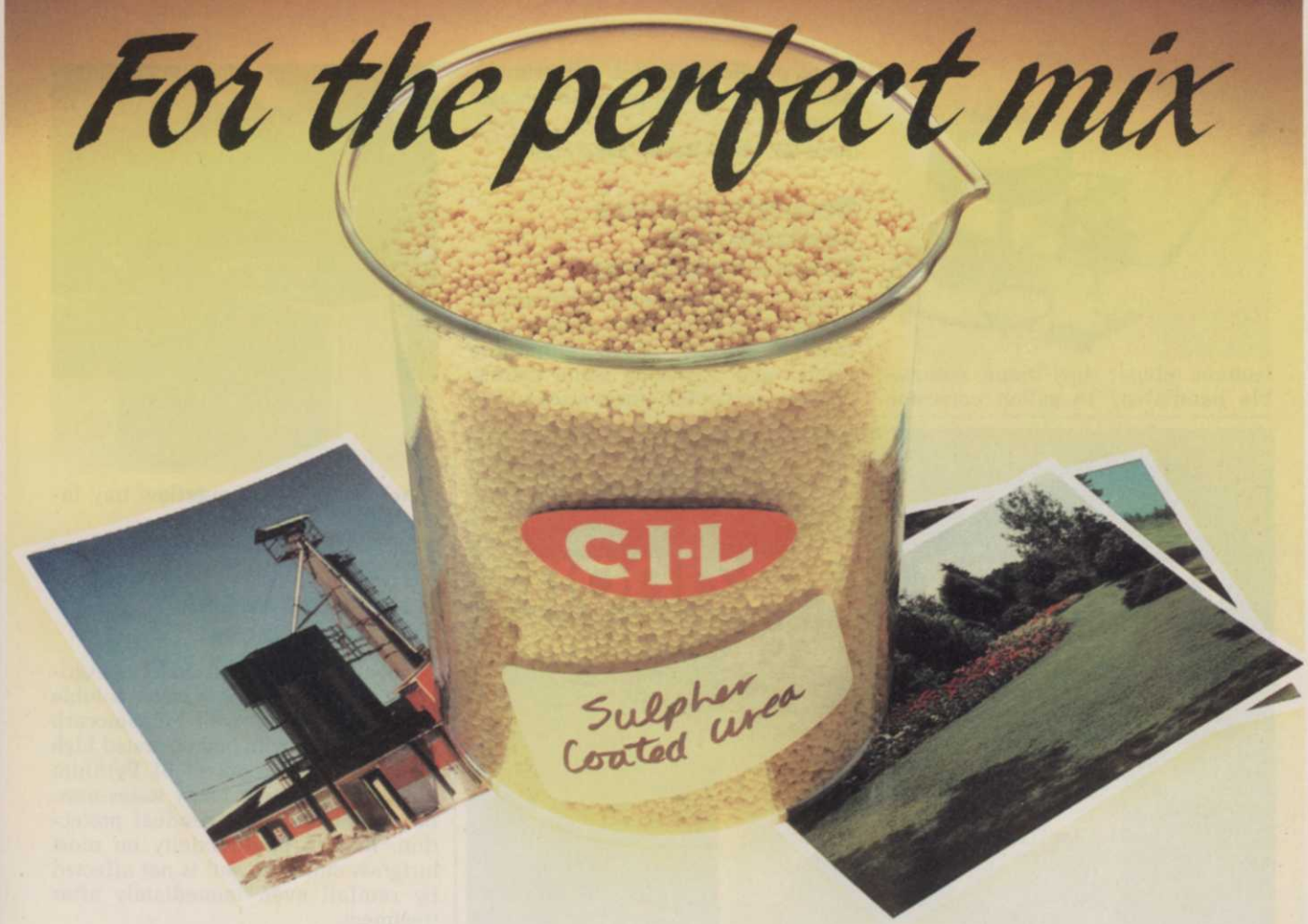
And though education at universities and technical schools is valuable, Woehrle gives one the impression that that working under the direction of a competent golf course manager is one of the most valuable experiences any aspiring "Super" can get.

"One of my most gratifying accomplishments during 26 years as a golf club superintendent," he said, "has been training 37 men who currently are golf course superintendents around the country."

While Woehrle didn't say so in as many words, it is evident that job satisfaction has made his working career a real personal success. **WTT**

Just 4 of 118 bunkers *on the two courses. Traps are edged and contoured semi-annually.*

For the perfect mix



In the plant...

C·I·L Sulphur Coated Urea is a high quality, controlled release nitrogen fertilizer that meets the needs of the blender precisely. Custom-sized, uniform particles reduce the chance of your mix segregating and help produce blended fertilizers that stay blended through shipping and application. Your customer is therefore assured of a consistent, top quality product that will suit his application needs.

For the plant...

Controlled, primarily moisture-released action; consistent particle size: with C·I·L Sulphur Coated Urea they add up to continuous, balanced feeding for up to five months per application! For the turf care pro, C·I·L S.C.U. offers easy application, even, long-term growth and superior fertilizer efficiency. C·I·L S.C.U. starts working from the moment it's applied, gives more complete utilization of nitrogen with NO nitrate buildup in the soil – and the sulphur is used by the plants when oxidized!

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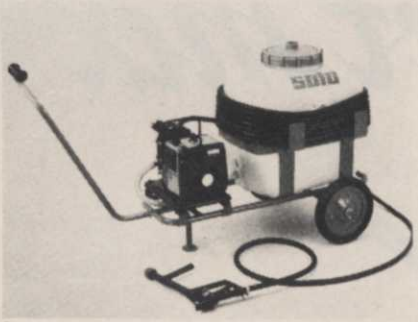

features tubular steel frame, removable handlebar, 16 gallon corrosion proof plastic tank and self-priming, gear driven, double piston diaphragm pump.

Circle No. 182 on Reader Inquiry Card

Decorator planters available from Clean City Squares

Clean City Squares Inc. has introduced decorator planters with anodized or painted bronze finish aluminum frames and aggregate stone panels. Planters available in three sizes and 29 panel styles. Water overflow tray included.

Circle No. 183 on Reader Inquiry Card

Registered by EPA for California use

Banol turf fungicide from Tuco Agricultural Chemicals is a water soluble liquid concentrate with Propamocarb hydrochloride with demonstrated high efficacy in the control of Pythium blight. Available in many states now, Banol provides long residual protection, has no phytotoxicity on most turfgrass cultivars, and is not affected by rainfall even immediately after treatment.

Circle No. 184 on Reader Inquiry Card

Flowmeters designed for liquid fertilizers

Ball Products, The Oilgear Co.'s meters are made for high volume capacity and suspension, so solids and particles up to 0.5 inches in diameter can pass through. Long life, easy installation and low maintenance make the meters suitable for application monitoring to

Continued on page 80

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batching control and custom blending. A universal readout mount allows flexibility for flow metering system design.

Circle No. 185 on Reader Inquiry Card

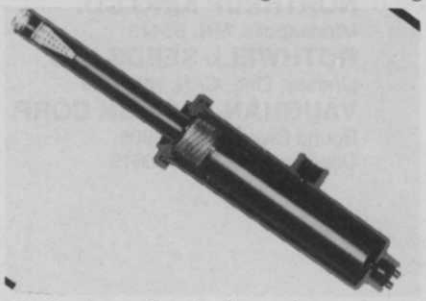
Insecticide/nematicide labeled for safety

Miller Chemical & Fertilizer Corporation has added a warning label to its Oxamyl 10 percent Granular insecticide/nematicide stating it is for professional use in greenhouses, nurseries, interior plantscaping and for agriculture use on tobacco. The dermal toxicity of Oxamyl 10 percent Granular is in excess of 2500 while oral is 110. It is a granular form of duPont's Vydate and has a sytemic activity similar to Vydate Liquid used as a soil drench.

Circle No. 186 on Reader Inquiry Card

Weather-matic has new high-pop spray head

Weather-matic has introduced the no. 36P extra high-pop spray head. Product has six-inch nozzle pop-up design for areas with high-cut or low ground uniform water coverage. Measuring



$8\frac{7}{16}$-inches, the body and cover are constructed of high-impact plastic. Unit is designed to accept Weather-matic 300 series' brass spray nozzles.

Circle No. 187 on Reader Inquiry Card

New mowers, tillers in 1983 Toro line

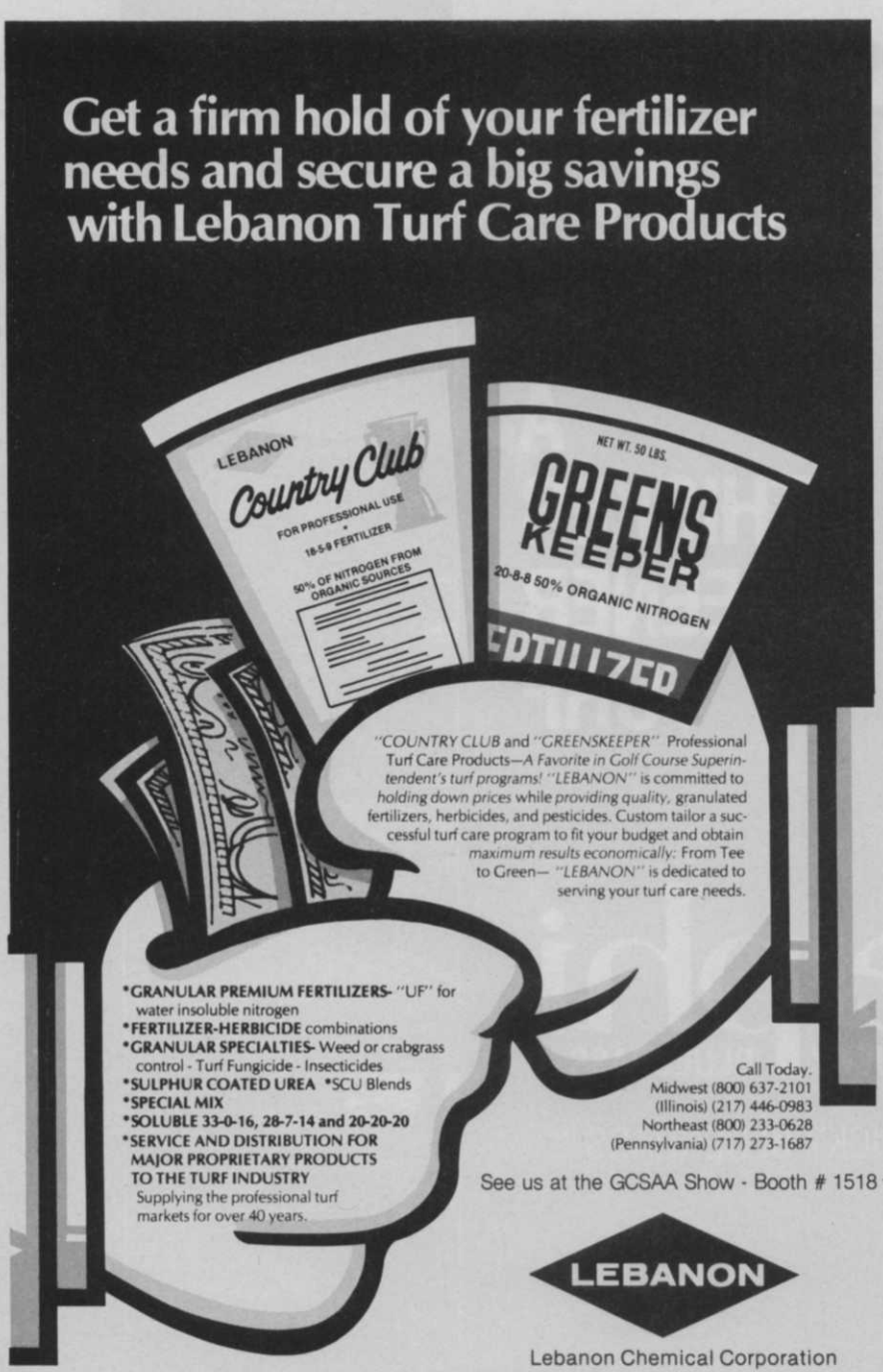
Toro Co. introduces its 1983 line of riding mowers and tillers. Mowers are designed for large acreage and feature

Briggs and Stratton syncro-balanced engines, four-in-one 32 inch deck for side discharge and rear bagging. Tillers include front and rear tine models

and offer a complete selection of tilling options. Both products have accessory items available.

Circle No. 188 on Reader Inquiry Card

Get a firm hold of your fertilizer needs and secure a big savings with Lebanon Turf Care Products



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Circle No. 126 on Reader Inquiry Card

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T42 Rotary Tiller

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No matter what kind of soil preparation help is needed, the Woods Model T42 Rotary Tiller will provide it. Gardening, landscaping or small farming are all made easier by the remarkable features built into this profitable dirt buster.

It will till a 42″ wide path down to 8″ deep cleanly and easily with direct gear-drive and a unique blade design. Its spring-loaded tailgate leaves tilled soil in smooth, ready-to-plant condition.

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Woods Model T50 Rotary Tiller works a 50″ swath.

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the goosegrass goes.

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SENCOR is formulated as a dry flowable herbicide for easy mixing and application with standard spraying equipment. SENCOR works two ways to effectively control goosegrass in bermudagrass—by contact activity and root uptake.

Applied prior to dormant turf, SENCOR also controls such broadleaf winter annual weeds as common chickweed, corn speedwell, henbit, parsley-piert, and spur weed. Ask your turf chemicals distributor for SENCOR 75 Turf Herbicide.

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Agricultural Chemicals Division
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management, high school athletic field maintenance, customer turnover, identifying pesticide injury, troubleshooting lawn problems and sprayer maintenance.

Also on Thursday morning, a special General Session will be devoted to presentations on aquatic weed control and pond management in the environment, pH and pesticide stability and growth retardants.

Pre-registration is $45, registration at the door is $50 and includes educational sessions and admittance to the Trade Show. For more information, contact Christine E. King, Pennsylvania Turfgrass Council, 412 Blanchard St., Bellefonte, PA 16823.

CHEMICALS

Diamond Shamrock tags Mitchell for V.P.

Kenneth P. Mitchell has been named vice president of the Specialty Chemicals Group of the newly-formed Chemical Unit of Diamond Shamrock Corporation, a Cleveland-based commodity and specialty chemicals operation.

Mitchell joined Diamond Sham rock in 1964 as a salesman. Prior to his new position, he served as vice president/general manager of the Process Chemicals Divi sion. In his new capacity, Mitchell will be responsible for the company's agricultural chemicals, animal health process chemicals and metal coatings divisions, as well as Duolite International.

SEED

Walkiewicz tapped for ASA presidency

Charles Walkiewicz, vice president of Vaughan-Jacklin Corporation, Bound Brook, NJ, has been elected president of the Atlantic Seedsmen's Association. The trade association represents the lawn, garden, farm seed and allied industries in the Northeast United States.

Walkiewicz began his 35 years in horticultural distribution as a billing clerk with McHutchinson & Co. He worked with William H. Neiman & Co. as general manager in charge of operations and when it was sold to Vaughan's Seed Company in 1971, he transferred there as assistant to John Vaughan, working his way up to his

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WTT 23

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present position of vice president.

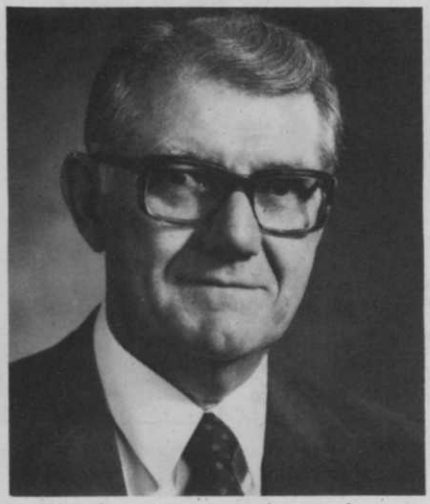
He has been trustee, treasurer and past president of the New Jersey State Florists Association, past chairman of the New Jersey Ornamental Horticultural Advisory Board, past trustee and treasurer, and is currently president of the New Jersey Flower & Garden Show and a member of other trade associations.

TREES

Brogan named to Lewis Tree Service presidency

Philip J. Brogan has been promoted to president of Lewis Tree Service Inc. in Rochester, NY.

Since joining the company in 1970, Brogan has been manager of the Syracuse Branch office, overseeing all residential, municipal and utility tree



maintenance crews. In 1978, he was promoted to executive vice president for the Lewis Tree Service, Inc. and was responsible for marketing, customer relations and company-wide safety programs.

He is a registered landscape architect in the state of New York, an active member of the International Society of Arboriculture, past president of the New York State Arborist Association, ISA Chapter, and current secretary-treasurer of the American Society of Consulting Arborists.

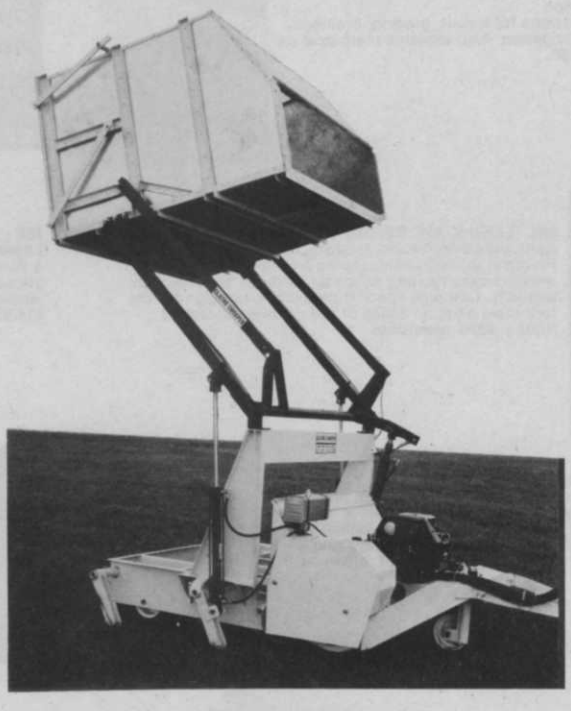
TURF

Turf-Seed's "Midnight" rated No. 1 in bluegrass

In a progress report recently issued by the United States Department of Agriculture, Beltsville, MD, Midnight Kentucky Bluegrass was rated the top variety among 84 entries. First year quality ratings were taken from 26 lo-

Continued on page 90

Olathe
TURF & TREE



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Design specifications for layout, grading, drainage, structures and irrigation. Also explains mathematics of drafting. **$34.50**

345 · COST DATA FOR LANDSCAPE CONSTRUCTION 1982
Kathleen W. Kerr, Editor
An updated unit cost data reference for designers and cost estimators. Developed to fill the tremendous need for detailed landscape construction cost data. Laid out in easy-to-use CSI format. Annual. **$27.50**

335 · LANDSCAPE DESIGN THAT SAVES ENERGY by Anne Simon Moffat and Marc Schiler
Practical guide to landscaping a home or office to reduce space heating needs by as much as 30 percent annually. Contains specific planning strategies for the four main climatic zones of the continental United States. **$9.95 paperback**

385 · TREES FOR ARCHITECTURE AND THE LANDSCAPE by Robert L. Zion
A book of photographic tree definitions, or portraits, intended to facilitate communication between the landscape architect, the architect and the layman. **$11.95**

565 · WEEDS by Walter C. Muenscher
Second edition. Premier text for identification and basic natural history for weeds found in the continental United States and Canada. Ecological data on weed biology combined with excellent keys and plant descriptions makes this an essential reference book. **$34.50**

530 · INTERIOR PLANTSCAPING by Richard Gaines
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555 · THE NEW YORK BOTANICAL GARDEN ILLUSTRATED ENCYCLOPEDIA OF HORTICULTURE
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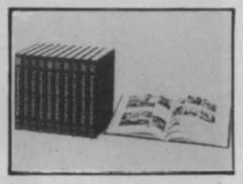

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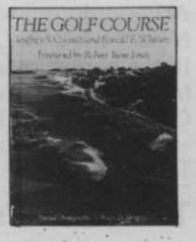

010, 015 · ADVANCES IN TURFGRASS PATHOLOGY by Dr. B.G. Joyner & Dr. P. Larsen
Leading U.S. turf pathologists report on turfgrass diseases, pythium blight, snow molds, fairy rings, leaf spot of Kentucky Bluegrass in Minnesota, initial and filed fungicide screening, turfgrass disease resistance, etc. Contains new ideas on how to combat turfgrass problems. **$27.95 hardcover, $18.95 paperback**

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This specially designed manual by leading turf specialists is a comprehensive, organized approach to turfgrass science and care. An easy, on-the-job reference for planning, purchasing, hiring, construction and plant selection. **$23.95 hardcover, $18.95 paperback**

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cations throughout the United States measuring such turf characteristics as color, density, disease resistance, heat and cold tolerance, shade adaptation and appearance.

Midnight's most unusual characteristic is its dark, blue-green color. Its overall disease resistance, density and wide range of adaptability contributed to its first-place rating. Midnight is recommended for use in sod production, lawns, golf courses, parks, and athletic fields. It is a product of Turf-Seed, Inc., Hubbard, OR. The 1982 crop production is nearly sold out. Availability will improve in the fall. For more information, write or call Turf-Seed, Inc., P.O. Box 250, Hubbard, OR (503) 981-9571.

American Association *of Nurserymen Governor John Chiapelone, left, of Burlingame Garden Center, Burlingame, CA, presents a $1,570.53 check to AAN Executive Vice President Robert Lederer. The check from the California Chapter of the AAN will go toward the Horticultural Institute's Endowment Fund Founder's Grant. The gift will be added to the $9,050 already contributed by individuals, business firms and associations to the Founder's Grant. Earnings will be used to support the HRI Endowment Fund's operating expenses.*

CHEMICALS

Mobay goes nationwide to talk to customers

Mobay Chemical Corporation, Specialty Products Group, of Kansas City, is currently conducting nationwide interviews of pest control operators, golf course superintendents, landscape archi tects and commercial lawn care operators to refine its knowledge of the specialty chemicals market.

The Specialty Products Group was formed last year to market Mobay's expanding list of chemicals to the professional turf and pest control fields.

Allen Haws, Manager of Specialty Chemical Sales for the Specialty Products Group, says, "We're finding out exactly what our customers want and need. Based on our research results so far, we're focusing on their application, packaging and information problems."

HORTICULTURE

HRI to publish new horticultural findings

The Horticultural Research Institute will publish "The Journal of Environmental Horticulture" early in 1983.

Edited by Dr. Thomas A. Gretz, head of the Department of Horticulture at Virginia Polytechnic Institute and State University, the Journal is designed to rapidly communicate relevant research findings to a broad readership in the nursery and scientific communities. Papers considered for publication will be reports of original research, either basic or applied, and review articles related to environmental horticulture. Each article will include a non-technical summation of how the information presented will be of value to the nursery industry.

"The Journal of Environmental Horticulture" will be a quarterly publication after its introduction early next year. Regular subscription prices will be $25 a year. Contact the Horticultural Research Institute, 230 Southern Building, Washington, D.C. 20005.

CHEMICALS

Stauffer Chemicals selects ad agency

Stauffer Chemical Company of Westport, CT, has chosen Barker Campbell & Farley for the advertising and sales promotion of its Agricultural Specialty Products. The Virginia Beach, VA, based ad agency will represent products including Betasan crabgrass control, Devrinol pre-emergent weed control, Vampan fumigan, Imidan tree insecticide, Aspon turf insecticide, and others. Barker Campbell & Farley organized their horticultural and agricultureal group in May 1982. J. Robert Stiffler, senior vice president of the agency, will be the account supervisor.

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Sensation and its management would help Gilson increase its share in that growing market. Sensation hopes to expand its potential by drawing on the increased engineering, manufacturing and financial resources the Gilson Brothers Company can provide.

"We can now accelerate the development of new products and across-the-board we'll be able to serve our current customers even better than we have in the past," said Johnson.

The Sensation line of products will be produced at the Gilson Brothers Company's facility in Lexington, TN.

EDUCATION

Agricultural programs feel harsh budget cuts

Weed control and plant disease are two areas being hardest hit by budget cuts at the University of Idaho's College of Agriculture.

Budget cuts over the last year have necessitated the consolidation of six administrative units into three, reductions in on-campus instruction and additional cuts in research and extension work throughout the state, according to Raymond J. Miller, dean of the college.

"The College of Agriculture has only four people to deal with weed problems throughout the state," Miller said. "We have lost plant pathologists at a time when more attention should be given to the serious continuing problem of plant diseases in Idaho."

Clifton Anderson, associate agricultural editor for the university, said the turf and horticultural programs at the college have not been impacted as much as others.

"These programs were small to begin with," Anderson said. "We would not be able to maintain credibility if we cut them any more."

Because of the cutbacks in the 1982-83 budget, the College of Agriculture will undergo the following changes:

-The Department of Plant and Soil Science and the Department of Entomology have been combined as well as the Department of Animal Science and the Department of Veterinary Science.

-A new Department of Agricultural and Extension Education is being formed, combining the Department of Agricultural Education and the statewide 4-H program and adding extension education.

-All programs offered by the college are currently under reevaluation.

-In the UI Cooperative Extension Service, county programs are being realigned in order to eliminate in order to eliminate 10 staff positions.

-Additional savings are to be made by eliminating several statewide programs in agriculture research and extension.

TREES

Davey forestry foreman seminar set for March

Hands-on training will be a key element in the Davey Tree Expert Company's 1983 Tree Care-Urban Forestry Foreman Training seminar. Sessions have been scheduled for March 21-April 1 at the Davey Horticultural Institute in Kent, OH.

The two-week program of lecture, demonstration and class participation in tree care maintenance operations is specifically designed for municipal, state, federal and institutional foremen, top trimmers and supervisory employees.

The format for the program is lecture, use of handout literature and reference books, audio-visual aids, demonstrations and student participation in the field. Classes will be 5½ days and two evenings per week. Student/instructor ratio will be 6 to 1 or less. Hands-on training is stressed and students are expected to perform the various functions and operate equipment under supervision. There will be tutors available nightly to assist students or for those desiring additional information.

Instructors for the program include:

- Ward Peterson, Senior Technical Advisor and Senior Climbing Instructor, teaching classes in climbing and tree care activities.

-Kenneth C. Miller, Ph.D., Senior Technical Advisor, will teach classes on insects and diseases and field diagnosis of tree problems.

-Richard E. Abbott, Vice President and General Manager, will teach the classes on appraisal skills.

- Roger Doucette, Operations Coordinator, will instruct the class on funding to the municipality by local, state and federal government grants and other money sources.

Subsequent programs will be June 6 to June 17, Sept. 19 to Sept. 30 and Oct. 17 to Oct. 28. Class size is limited to 12 students. Tuition for the two-week program is $650 per student which includes reference books, handout literature, supplies, equipment rental fees, material for field operations and insurance.

For more information about the program or housing, call the Davey Environmental Services, 1-800-321-7572 or (216) 673-7352 or write 117 S. Water St., Kent, OH, 44240.

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Car Paths *from page 50*

fic bond) - Used at 2-3 inch depths, depending on ground. This is a very resilient material and does present some periodic weeding and edging problems.

BLACK TOP - approximately $1.50 per square foot. Some chippage can be expected around the edges. Easy to work with in forming the curbing.

CONCRETE - approximately $2 per square foot. The best wearing surface and all agree the most durable. Very hard to walk on with golf spikes, but allows minimal maintenance and upkeep.

Regardless of material used, your cars should be equipped with power rib tires, which are thicker and allow longer tire in comparison to straight ribs.

In formulating your paths, ground conditions and traffic patterns are two important considerations. If conditions vary, it would be in your best interest to have whoever is going to do the work walk the course to inspect the different areas needing to be dealt with. Many people feel paths should be installed on new courses only after the course has been open from six months to a year; allowing the superintendent to get a feel for the traffic pattern, taking safety and playability into account. Others feel paths can be designed along with the new course. On existing courses, the superintendent and pro will have a good working knowledge of traffic patterns and how they relate to that operation.

Cost factors to consider include: material cost, pre and post grading, material and labor, direct labor, machinery rental and budget limitations. A golf course can vary these considerations from having an outside contractor doing the whole job to having the superintendent and crew performing this improvement or using any combination of club to outside help that the budget will allow. Most contractors are receptive to providing you with the best overall program within your limitations. Some courses even have long range programs consisting of two to three holes per year, taking cost factors into account.

I hope you will take the above factors into account and contact a local golf course architect firm or other courses in your area to help you gain the specific knowledge you need. **WTT**

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St. Andrews *from page 36*

Pakkala locks in head *to manual irrigation system. An automatic system is part of the reconstruction plan.*

their members what they're doing. They don't feel the members need to know. Pakkala believes in the exact opposite. He prefers to have his duties and projects in writing and keeping the membership well-informed. It is standard policy for Golf Force to submit a monthly report to the club on the superintendent's progress. (This is done less frequently during the dormant season.)

Pakkala believes the superintendents of today owe a debt of gratitude to the past generations of superintendents. "We're in a better position to deal with management and members because of the older superintendents," said Pakkala. "Today budgets, salaries and research are better because of the groundwork they laid. The new guys coming out of the universities have really turned things in golf around with the way they maintain courses."

Larry Pakkala is one of those new guys. He likes challenges and that is one of the main reasons he joined on at St. Andrews.

While the club has the Nicklaus organization solidly behind it there is still much work to be done. "Nicklaus has developed a corporation that is designed to better golf," said Pakkala. "That is why he is involved with St. Andrews. The club has some ideal benefits. It is 20 minutes from Manhattan and two minutes from public transportation. We expect to appeal to the international business clientele of New York." He added that the club will probably sponsor a major tournament in 1988 to celebrate the centennial of golf.

St. Andrews is getting back on its feet and regaining the glory of being the oldest golf club in the United States. Larry Pakkala is a major force behind that effort and when it is completed, maybe he'll stay or maybe he'll go on to the next challenge. There might be a clue in this statement to *WTT*, "One of these days maybe I'll have a big, chunky budget, but I don't know if I could work with it." **WTT**

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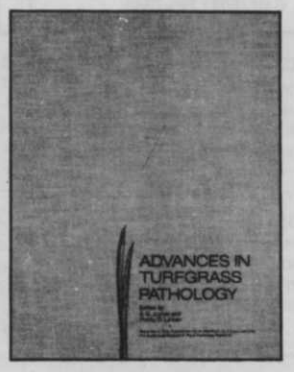

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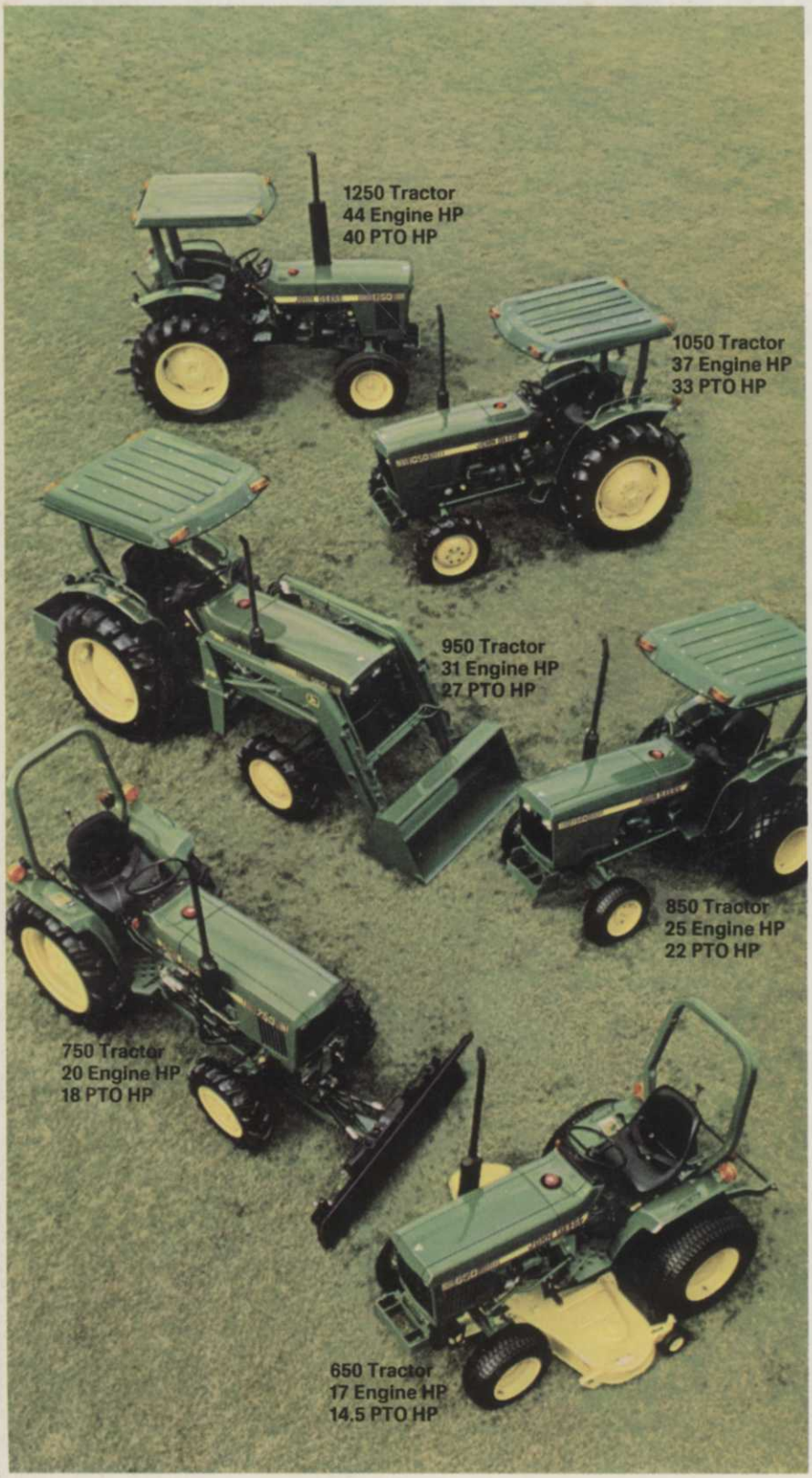

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Or choose the turbocharged 1050 for greater power and fuel economy in a compact package. And for really big jobs, the 1250 is an ideal choice. You can even equip these tractors (excluding the 850) with mechanical front-wheel drive to gain extra traction.

For the name of the nearest dealer, or a free folder on the John Deere compact utility diesel tractors, call 800-447-9126 toll-free (800-322-6796 in Illinois) or write John Deere, Dept. 67, Moline, Illinois 61265.

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